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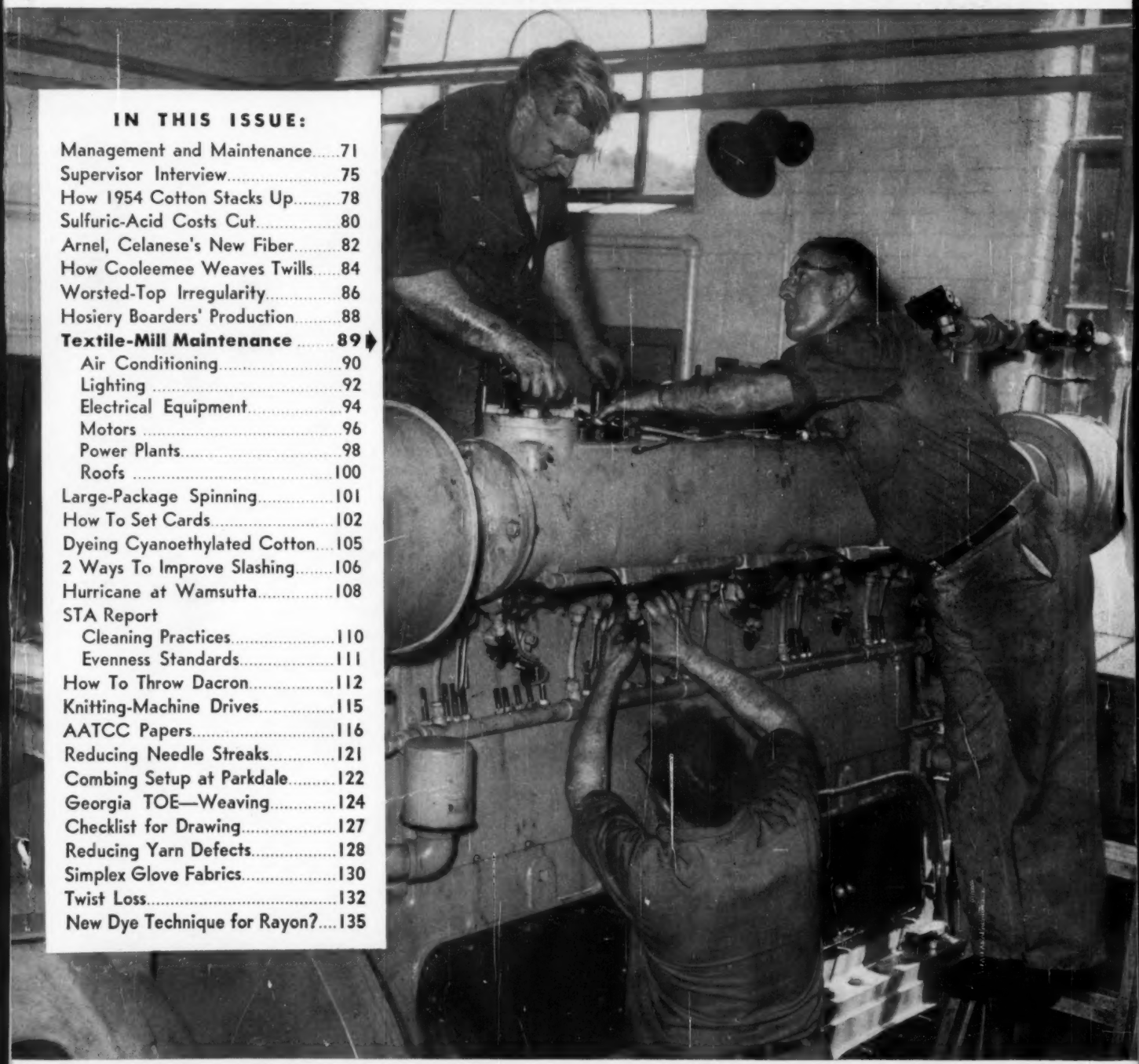
# Textile World

JANUARY, 1955



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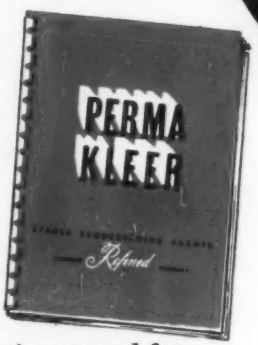


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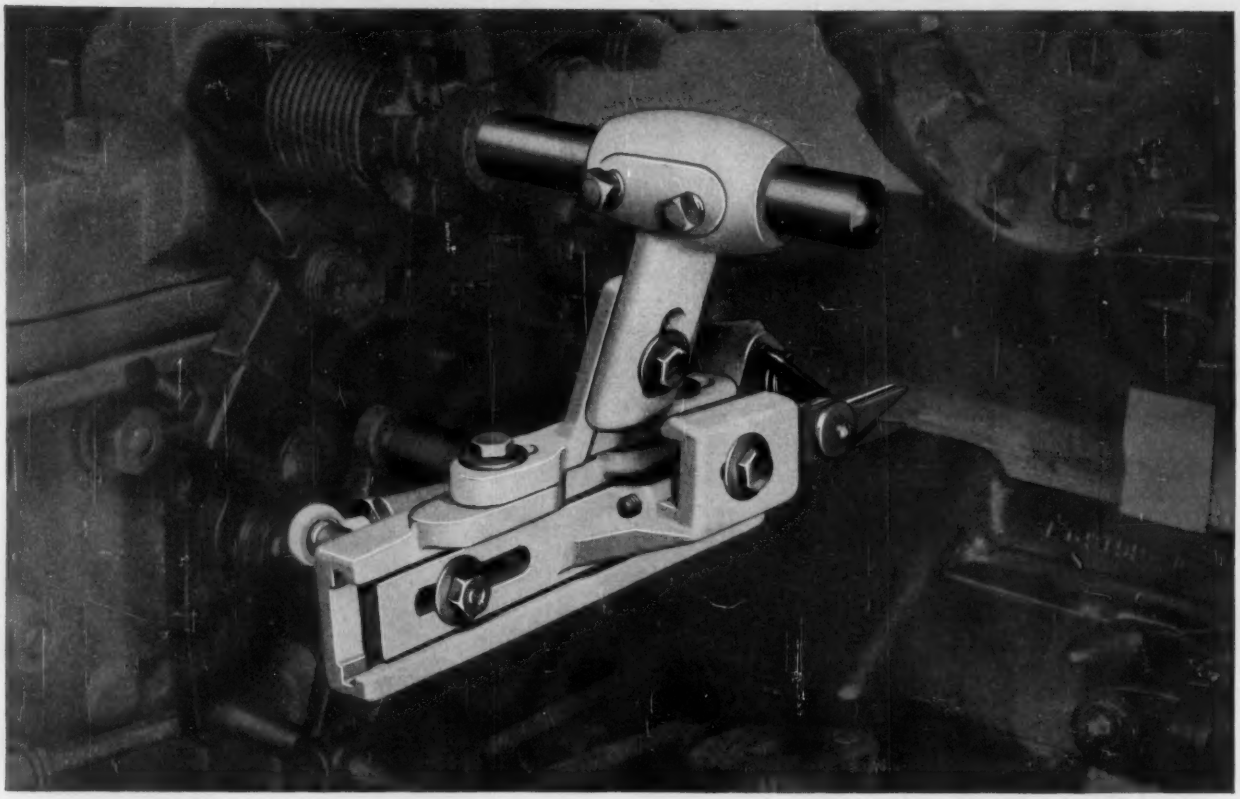

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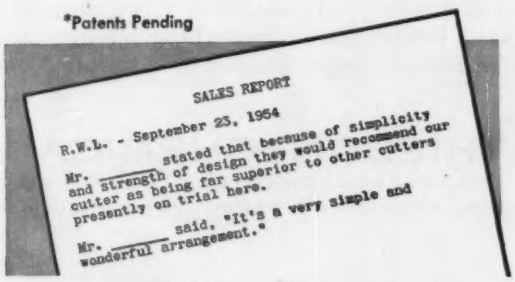
SALES REPORT

R.W.L. - September 23, 1954

Mr. _____ stated that because of simplicity and strength of design they would recommend our cutter as being far superior to other cutters presently on trial here.

Mr. _____ said, "It's a very simple and wonderful arrangement."

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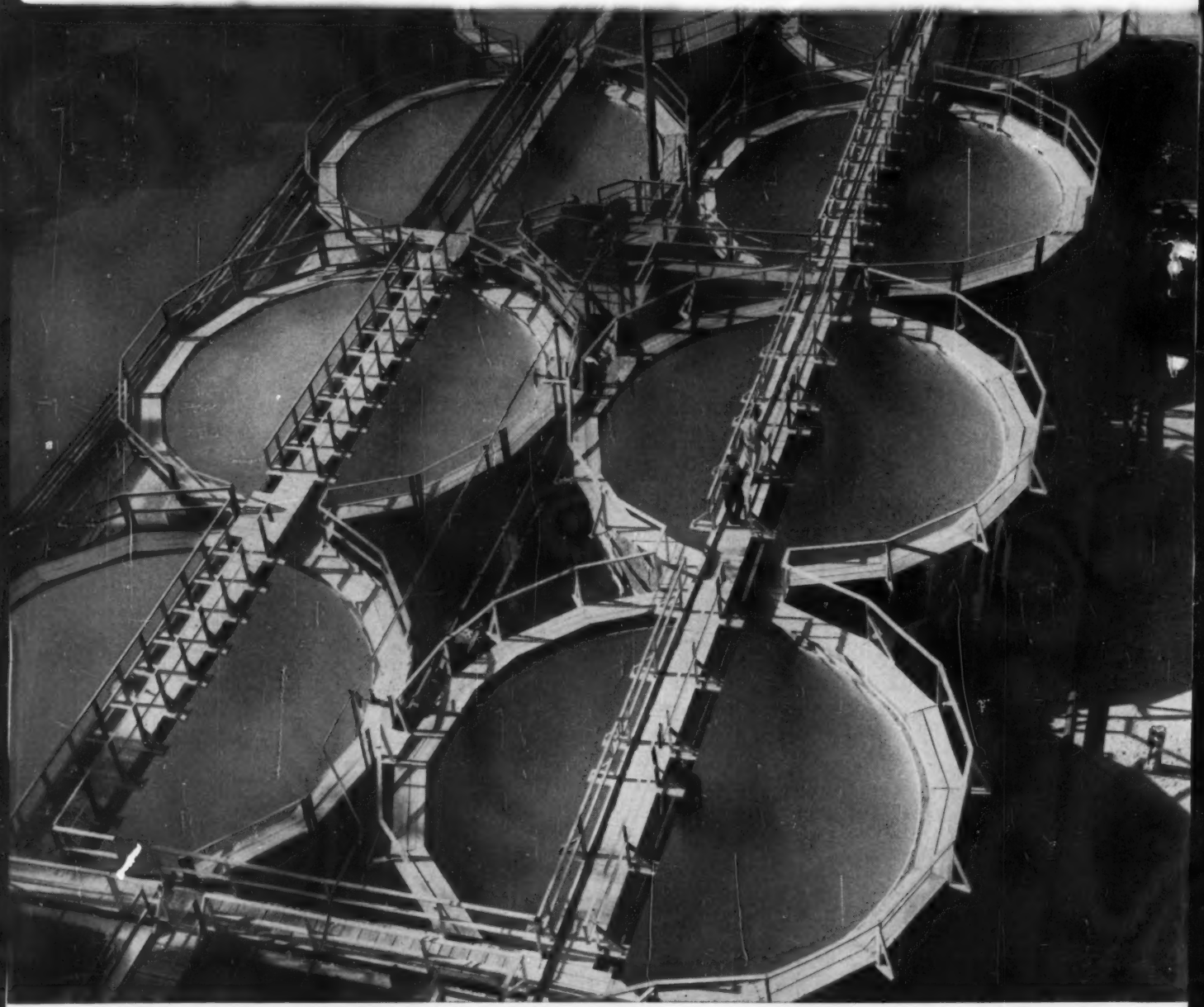

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# Textile World

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# NEWS of the MONTH

## Wool Research

The Wool Research Advisory Committee has recommended that the U. S. Dept. of Agriculture establish pilot-plant facilities to work out labor, equipment, and other economic and engineering problems for the wool industry.

## Tariffs

Hearings before two government agencies started in December with every major textile association represented. The hearings concerned barriers to Japanese imports and the General Agreement on Tariffs and Trade (GATT).

As hearings started, briefs had already been filed by the textile associations urging that Japanese tariffs be maintained and that the Reciprocal Trade Agreement Act be allowed to expire.

## Mill Developments

► Several hosiery mills are experimenting with novelty effects produced by using metallic yarn in full-fashioned seams or as a border around the welt.

► An installation of Auto-Leveler wool-drawing machines in the Sunbeam Wolsey Factory, Cork, Ireland, is said to have reduced waste by 90%.

► Vertical spoolers are being used to wind filament yarns with a close wind at an average speed of 600 yds. per min., according to Victor Schiffer of Clearview Textile Corp., speaking at an ASME meeting.

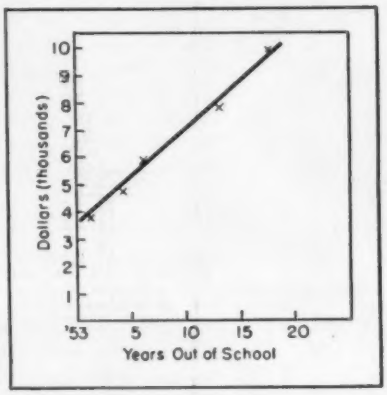
► Loom stops caused by filling faults account for 52 to 65% of all loom stops, and over 95% of second-quality fabrics in most synthetics mills are caused by filling problems, according to Deane R. Quinton of Bates Mfg. Co., also speaking before ASME.

► Hess, Goldsmith & Co. has developed a high-strength, waterproof, vinyl-covered Fiberglas fabric called Weblon for use in seat covers, umbrellas, etc. Widths will be 49 to 54 ins. Price: $1.14 to $1.80 per yard.

► A method of dyeing finished stretch yarn has been developed by Central Yarn & Dyeing Co., Gastonia, N. C. Deliveries are made in a week to 10 days on Helanca.

► Nylon tape on spinning frames loads up with lint, according to experiences reported at the fall meeting of Northern N. C.-Virginia Div. of Southern Textile Assn.

## Clemson College Survey




**SALARY CURVE for textile graduates from Clemson College shows a straight-line relationship with years out of school. This chart is based on the minimum earnings of more than 50% of each class; for example, after 20 years, at least 50% of Clemson textile graduates are earning above $10,000. Conducted by R. G. Carson and reported in *Bobbin and Beaker*, the survey also indicated that 25% of the graduates are earning $10,000 after about 12 years and $20,000 after about 25 years.**

► Premier Knitting Co. is manufacturing sweaters made of 100% Acrilan for the spring market.

► Indian Head Mills is coming out with four finished cotton fabrics: three fabrics with a crease-resistant finish for apparel use and a heavier decorator fabric with a permanent crisp finish.

► A full-fashioned stretch stocking made from 15-den. yarn is reported by Burlington Mills. The stockings are made on 60-gauge machines in three sizes from Burmilized stretch nylon yarn.

## Fiber News

► Two-toned metallic yarn, with silver on one side and a choice of royal, red, Permagold, or jet on the other, has been developed by Metlon Corp., 432 Fourth Ave., New York 16, N. Y. Other combinations are available on special order. The two-toned yarn can be combined with any fiber.

► A combination metallic and Mylar yarn has also been developed by Metlon. The Metlon-Mylar does not need reinforcing and fabrics containing the yarn can be dyed at the boil. Acetate and azoic dyes will dye Metlon-Mylar. Available widths: ¼ and ½ in. Colors: gold and silver.

► Fabric tests are under way on Goodrich Chemical Co.'s new synthetic fiber, and small quantities of the fiber are expected to be available sometime this year. Fabrics being tested include sweaters, suits, and overcoats.

► The trial period for spotted cotton standards in physical form (boxed) has been extended to April 15, 1956, by the U. S. Dept. of Agriculture. Field-trial boxes are available at $5 per six-sample box, f.o.b. Washington, D. C.

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Subscription: United States and possessions, $3.00 a year, $4.00 for two years, $5.00 for three years. Canada, $4.00 for one year, $6.00 for two years, $8.00 for three years. Other Western Hemisphere and the Philippines $10.00 for one year, $16.00 for two years, $20.00 for three years. All other countries $15.00 for one year, $25.00 for two years, $30.00 for three years. Entered as second class matter August 29, 1936, at Post Office, Albany, N. Y., under the act of March 3, 1879. Printed in USA. Fifty cents per copy.



► American Cyanamid's pilot plant for producing acrylic fiber under the lab-

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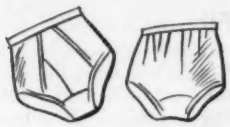
# WHEN IT'S TURBO SET, IT'S *"Set for life"*

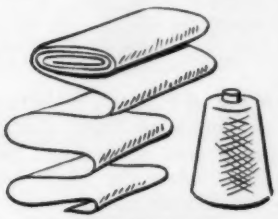
WOMEN'S STOCKINGS

MEN'S AND CHILDREN'S SOCKS



MEN'S AND WOMEN'S BRIEFS

SWEATERS



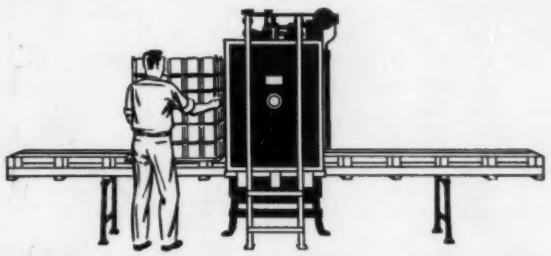
FABRICS AND YARNS

Set your synthetics the proven way — with Turbo penetration to assure quality setting that stays "set".

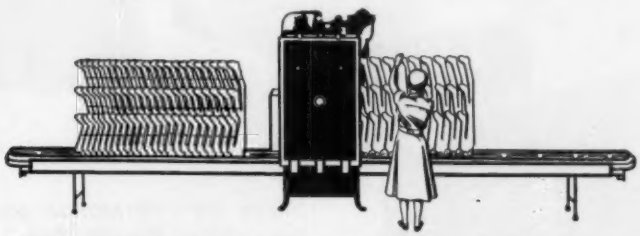
Do it with vacuum — do it with pressure — or do it with both. Turbo equipment gives you the choice to get the setting you need. And, with a Turbo, the heat really penetrates all the way for absolute uniformity throughout the entire load.

A Turbo takes the guesswork out of setting. Automatic operation, timing and temperature controls reduce the human-error factor to a new low. Work moves along smoothly and easily on a preplanned schedule. While one load is being set, the operator prepares the second which automatically moves into the setting chamber — a Turbo "thinks for itself".

For fast, accurate setting, set modern fabrics the modern way, with a Turbo. There are machines for women's stockings, men's and children's socks, sweaters, underwear, yarns and fabrics. If you have a particular problem, Turbo engineers can adapt standard machines for you, or design one to specifically meet your needs. Talk to a Turbo Representative soon and get the whole profitable story.



The Turbo Yarn Setter . . . capacity, 300 pounds per load at steam pressures up to 45 pounds per square inch. Automatic timing and temperatures, assure high quality results, vital in setting and processing stretch yarns.



The Turbo AD-48 . . . a dual-purpose machine that preboards with steam, finish boards with heated air. Illustrated on the conveyor are the new Turbo Triple-forms that give you three times the production of children's socks and anklets.

TURBO SINCE 1929

**TURBO MACHINE COMPANY, LANSDALE, PENNA., U.S.A.**

Southern Representative: F. W. Warrington Co., Charlotte, N. C.

*Manufacturers of precision hosiery finishing machinery, also Crimpers, Crimp Setting Equipment, and Tow Processing Equipment*





# If you need a drive for jobs like these--

*Textile and Dyestuff manufacturers*

*rely on* **ATLAS**

**FADE-OMETERS**

**LAUNDER-OMETERS**

***for speed and dependable results in research and for quality control in production. Products that must be guaranteed —***

- not to, deteriorate or fade easily under sunlight.
- against loss of color or shrinkage from laundering or dry cleaning.
- against colors bleeding in laundering.
- for permanence of fungicides, fire-proofing, moth-proofing and other finishing agents.
- and other deteriorating effects of light and laundering.

More is required of modern fabrics than ever before if they are to stand up in competition today. The Atlas Fade-Ometer and Launder-Ometer will give you dependable test results in a minimum of time and at minimum cost.

*Write for information on the new Atlas Scorch Tester for testing damage due to chlorine retention.*

**ATLAS ELECTRIC DEVICES COMPANY**

**361 West Superior Street, Chicago 10, Illinois**

***WEATHER-OMETERS • FADE-OMETERS • LAUNDER-OMETERS***




► American Cyanamid's pilot plant for producing acrylic fiber under the laboratory name of X-54 has restarted production at Stamford, Conn.

## News Briefs

► Several converters report that some of their customers are demanding synthetics in blends in low percentages that actually debase the fabric.

► Two round-table discussions at the Plant Maintenance & Engineering Show (Chicago, Jan. 24 to 27) will be devoted to textile-mill maintenance.

► The Edgar Marburg Lecture on textile-fiber properties will be given by Dr. Walter Hamburger of Fabric Research Laboratories at the annual meeting of the American Society for Testing Materials next summer.

► An organization to handle wool promotion has been set up under the Wool Act of 1954. Called American Sheep Producers Council, Inc., the organization will have headquarters in Chicago, Ill.

► A duty factor that correlates with actual wear tests has been developed by Courtaulds Ltd. The duty factor is obtained by plotting the results of a flat-abrasion test against a flex-abrasion test. Work was done on rayon blends.

► A. L. Code, Canadian Woolen and Knit Goods Manufacturers Association president, said that foreign imports have closed down 26 of the 93 wool-cloth mills in Canada.

► Chemstrand has arranged to make available to American mills fabric constructions developed by N. T. Sekers, managing director of West Cumberland Silk Mills in England.

► For the first 11 months of 1954, shipments of rayon and acetate filament yarn totaled 657 millions lbs., 20% below the 1953 figure. Staple plus tow shipments were up 27%.

► A two-year contract has been awarded to the School of Textiles, N. C. State College, to develop comparative data on Du Pont's fibers.

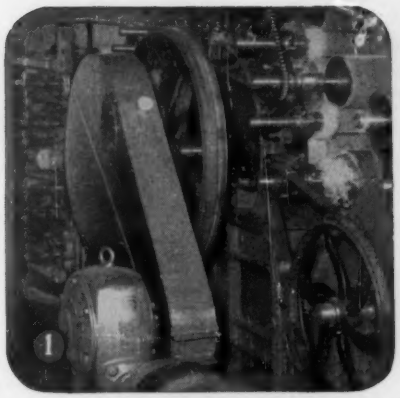
► Copies of *Certain Properties of Bath Towels*, prepared by the School of Home Economics, University of Alabama, are available free from the school as long as they last. The report deals with the effects of weaving construction, yarn number, twist, etc. on towel performance.



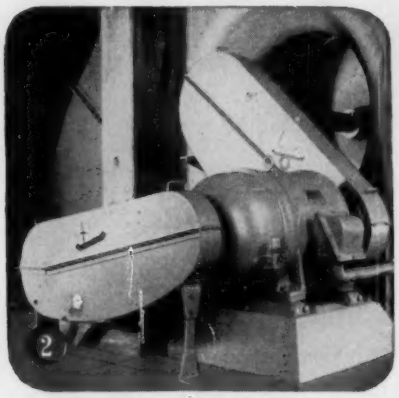

**A REVOLUTIONARY DESIGN IN CONE HOLDERS**

# If you need a drive for jobs like these--

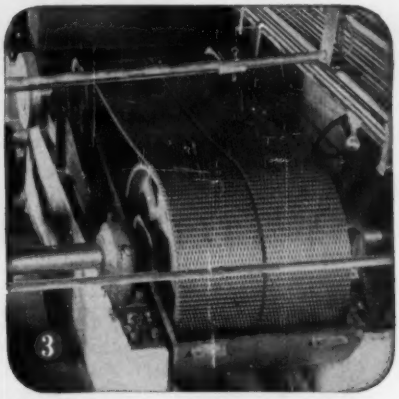
# YOU'RE MONEY AHEAD
## with LINK-BELT Silent Chain



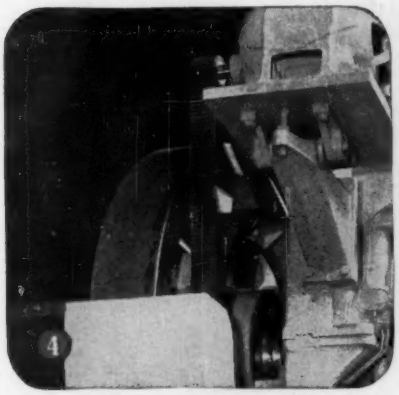
**1 ADVERSE OPERATING CONDITIONS.** Humidity, heat, cold do not lower Link-Belt Silent Chain's better-than-98% efficiency.



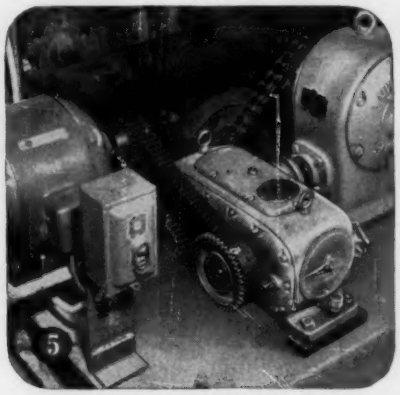
**2 UNFAILING SAFETY.** Dependability assures continued production. On above tunnel ventilators, Link-Belt drives protect human life.



**3 LARGE OR SMALL HP.** A versatile line, Link-Belt Silent Chain drives are available from fractional to thousands of horsepower.



**4 LARGE RATIOS.** Link-Belt Silent Chain operates efficiently on extremely short centers at ratios as high as 10-to-1.



**5 LIMITED SPACE.** Easy to assemble in close quarters, Link-Belt Silent Chain permits built-in drives, compact housings.

**6 HIGH SPEED.** After 13 years on this newspaper press at speeds up to 4700 fpm, Silent Chain is still efficient.

Here's why Link-Belt Silent Chain Drives offer you more per dollar spent:

- Lower cost—often lower in first cost, always lower in ultimate cost.
- Longer life—trouble-free performance for 25 or 30 years is common.
- No dismantling machine or removing sheaves for repairs.
- Better than 98% efficiency.
- Maintained ratio assures full productive capacity.
- Slipless action assures a better product.
- Easy to install.
- Safe to employees—operates in oil-retaining casing.

For all the facts, see your Link-Belt distributor or factory branch store, or write for new Book 2425.

13.440

**LINK-BELT**

**SILVERSTREAK SILENT CHAIN DRIVES**

LINK-BELT COMPANY: Executive Offices, 307 N. Michigan Ave., Chicago 1. To Serve Industry There Are Link-Belt Plants, Sales Offices, Stock Carrying Factory Branch Stores and Distributors in All Principal Cities. Export Office: New York 7; Canada, Scarboro (Toronto 13); Australia, Marrickville, N.S.W.; South Africa, Springs. Representatives Throughout the World.

A REVOLUTIONARY DESIGN IN CONE HOLDERS
NOW STANDARD ON McBRIDE CREELS

VERSATILE, COMPACT, RUGGED, EFFICIENT. McBRIDE MAGAZINE CREELS ARE ENGINEERED FOR YOU—TO INCREASE YOUR EFFICIENCY, CUT YOUR COSTS.

**QUIK-CHANGE,** New McBride cone holder has already proved its versatility in handling cones, pirns, bobbins, tubes, etc.

**FEATHER-TOUCH THUMB RELEASE** allows instant change of packages without tools. Just snap it on, snap it off. Sturdy swing-out arm gives easy access for loading. Rotating spindle facilitates tying of transfer tails.

Like all of the McBride BIG 3 CONTROLS FOR QUALITY, the Quik-Change cone holder is standard equipment on all McBride creels.

THE OTHER TWO CONTROLS FOR QUALITY:

**TENSION-MASTER**—A wide range of clearly numbered settings insures uniform tensions on all ends. Settings of an entire row of units checked at a glance.

**INSTANT-STOP**—Sealed mercury-switch stop-motion. Available in Sensitive, Standard, and Heavy-Duty models. Handles virtually all weights of yarns.

*CREELS for every purpose, CONE HOLDERS, STOP MOTIONS, TENSION CONTROLS, WARP BEAMS, FLANGES, CARPET INSPECTION TABLES, METAL AND WOOD ROLLS.*

*COMPLETE ENGINEERING SERVICE IS PART OF EVERY McBRIDE INSTALLATION*

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COTTMAN AVE. & WISSINOMING ST.
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47 COLBORNE STREET
TORONTO 1, ONTARIO



# ROUND TABLE

## Letters From Readers

What's on your mind?

We welcome your comments. Whether you agree or disagree, with us or anybody else, we will be glad to have you air your views.

Unless you ask us not to, we will use your name and company connection when your letter is printed. If you prefer to have your opinions appear unsigned, we will respect your confidence by using only a set of initials.

Write to Editor, Round Table, TEXTILE WORLD, 330 W. 42nd St., New York 36, N. Y.

### WHAT'S NEW

Dear Editor:

We have read your editorial comments in TEXTILE WORLD every month with a lot of interest. They always make sense, and . . . your November comments ["What's New?", TW, Nov., '54, p. 4] were timely and to the point.

For many years I have wondered why our mills, printers, finishers, and designers have not tried to put an extra pound or so of textiles in each home every year. Why can't they make Christmas tablecloths, napkins, sheets, pillowcases, bedspreads, and even curtains and drapes with a holiday pattern? . . .

Perhaps an extra pound or so of fabric would be bought for every man, woman, and child if there were textiles designed for special occasions like birthdays, wedding anniversaries, and holidays.

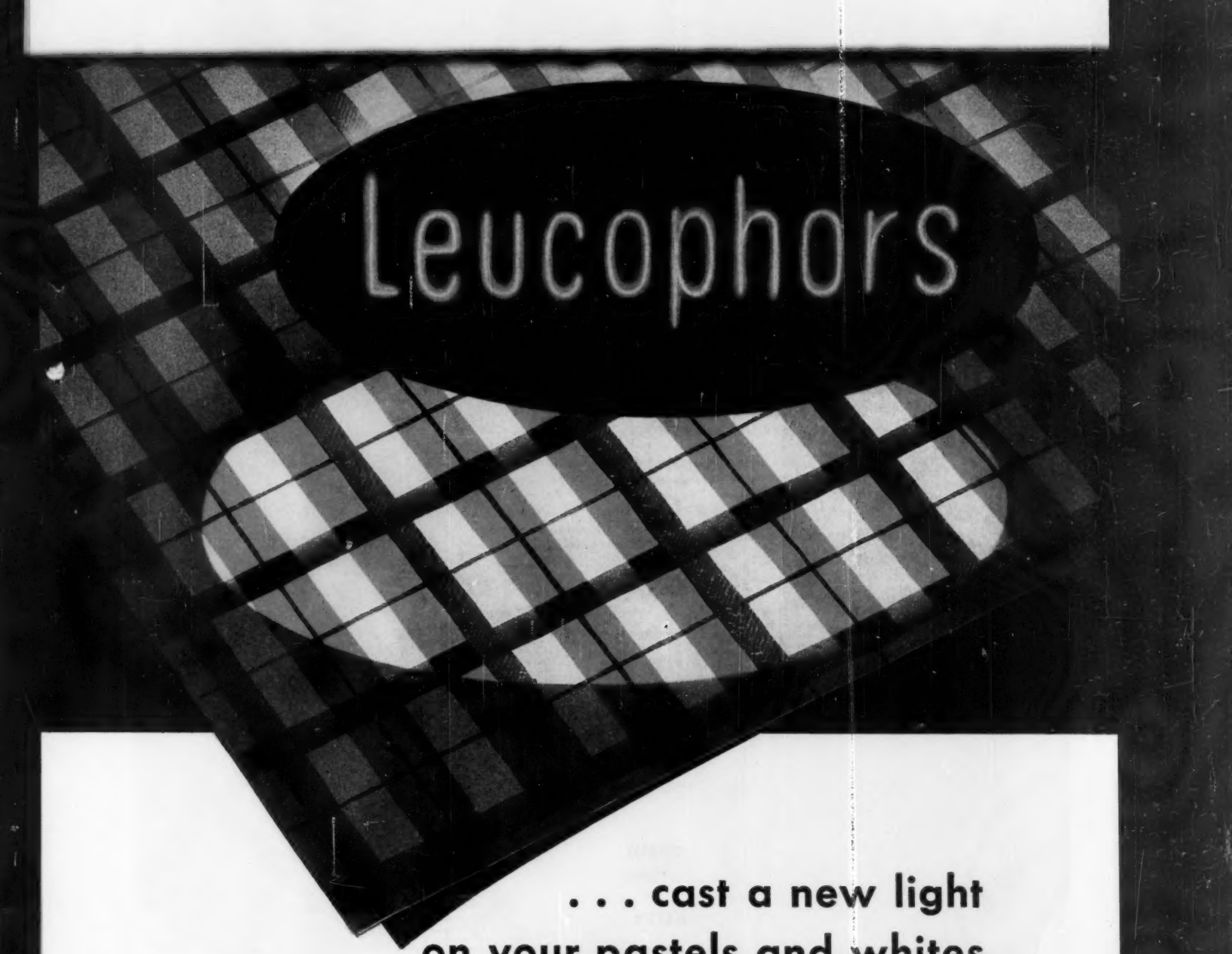
Handkerchiefs! Wouldn't every every man, woman, boy, or girl like to carry a "Happy Birthday" handkerchief every day for a whole week near their birthday? And for Christmas week, anniversary week, even New Year's? . . . Football banquets at home, club, and hotel could be set off with a special tablecloth and napkins. So could our church and various civic-club banquets.

From time to time I have attended



Can't rust out!

different conventions and association meetings at Atlantic City, Boca Raton,




# . . . cast a new light on your pastels and whites

Meet the line of *optical brighteners* that brightens cotton, rayon, wool, nylon, acetate, silk, Orlon, Dynel.

Sandoz Leucophors brighten fabrics by absorbing invisible ultra-violet light and re-emitting it as visible light of longer wave length. Result: whiter whites and brighter brights that just naturally catch the eye.

Get full details on the Leucophor that best meets your current needs from your nearest Sandoz office: Hudson, Mass.; Fairlawn, N.J.; Philadelphia; Charlotte; Cincinnati; Los Angeles; Montreal; Toronto. Sandoz Chemical Works, Inc., 61 Van Dam Street, New York 13, N.Y. 8.4.1

SANDOZ

SANDOZ

THINKS AHEAD WITH TEXTILES

# Can't rust out!

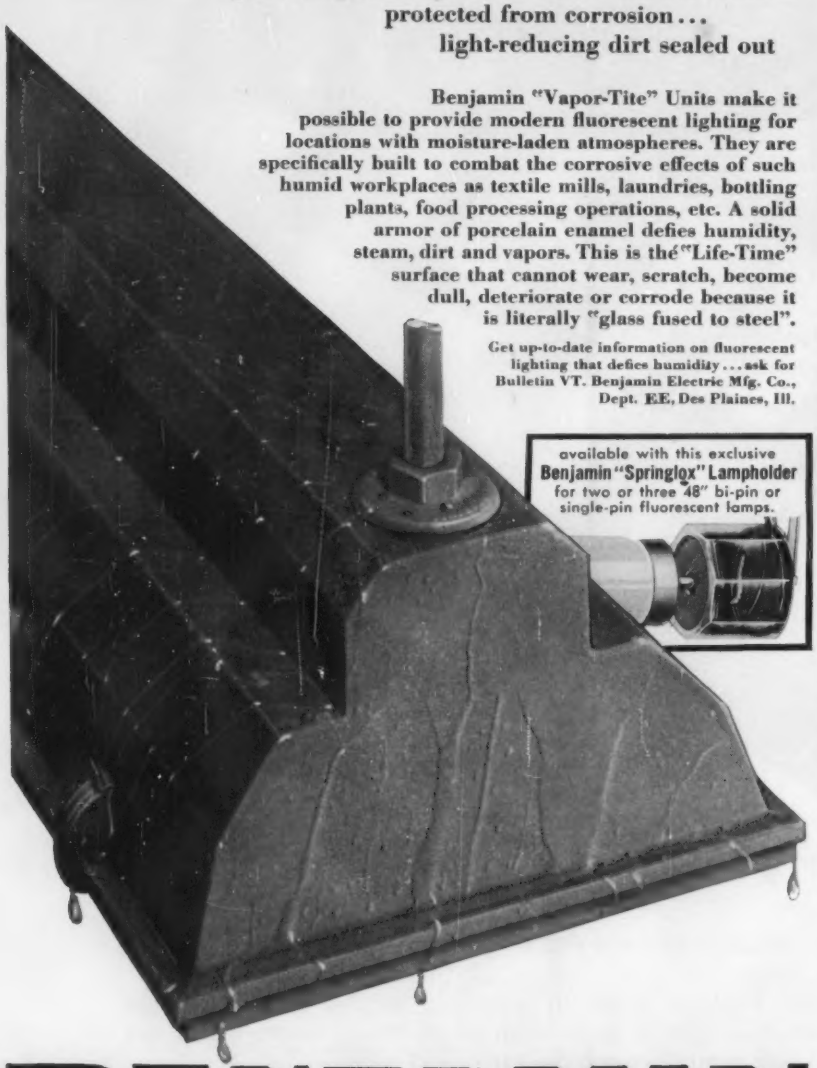
**no cracks or crevices... no place for rust to get a foothold... seamless, one-piece housing with unbroken surface of "Life-Time" Porcelain Enamel!**

## No service breaks due to humidity!

**poor lamp-starting eliminated... electric contacts protected from corrosion... light-reducing dirt sealed out**

**Benjamin "Vapor-Tite" Units make it possible to provide modern fluorescent lighting for locations with moisture-laden atmospheres. They are specifically built to combat the corrosive effects of such humid workplaces as textile mills, laundries, bottling plants, food processing operations, etc. A solid armor of porcelain enamel defies humidity, steam, dirt and vapors. This is thé "Life-Time" surface that cannot wear, scratch, become dull, deteriorate or corrode because it is literally "glass fused to steel".**

Get up-to-date information on fluorescent lighting that defies humidity... ask for Bulletin VT. Benjamin Electric Mfg. Co., Dept. EE, Des Plaines, Ill.


available with this exclusive
Benjamin "Springlox" Lampholder
for two or three 48" bi-pin or
single-pin fluorescent lamps.

BENJAMIN
TRADE MARK

682

## "VAPOR-TITE"

*Sold exclusively through electrical distributors*

**A Product of Benjamin Electric Mfg. Co.**

makers of famous Benjamin and Leader Line lighting equipment and Sound Signals for Industry, Institutions and Commerce.

different conventions and association meetings at Atlantic City, Boca Raton, Biloxi, etc. All could have been brightened up and made more pleasant by a little extra in the way of fancy linen. I believe that if the idea were properly presented by a good salesman, any first-class convention hotel would perhaps buy Cotton Manufacturers Association, CIO, Bankers, or what-have-you lines that would add thousands of pounds of textiles to their present stock. Any middle-class or wealthy family, I believe, would go for these things. Any club, church, or convention hotel would also be interested, I feel sure. . . .

I just wanted you to know that you set me to thinking a little.

JIM DAVIS

Columbus, Ga.

### PLUG THE SUCCESS ANGLE

Dear Editor:

Every textile-mill worker gets personal satisfaction from identifying himself with someone or something successful, even when the relationship appears to be somewhat remote. Bulletin boards, house organs, publicity releases and similar employer-employee contacts are far more effective when they make use of this very human trait.

But it pays to shift the emphasis slightly according to whether men or women workers are predominant in number, or according to which section of mill personnel particularly needs a lift in morale.

Male workers get considerable satisfaction from identifying themselves with a successful company. For them, concentrate on the importance of the mill in the industrial setup of the community. Stress stability of the company, its prestige in the markets of the world, and its high standing in quality production.

But for the women workers, point out how other female employees have set individual records in the mill. Publicize the members of their sex who gain recognition in outside activities, excel in hobbies, or have developed an above-average degree of skill in their occupation or their everyday lives. Your women employees readily identify themselves with that kind of personal success.

When in doubt, combine both angles in liberal measure. But be ready to slant your success stories to fit the requirements of the moment if you expect your publicity and worker relations to bring more-satisfactory results.

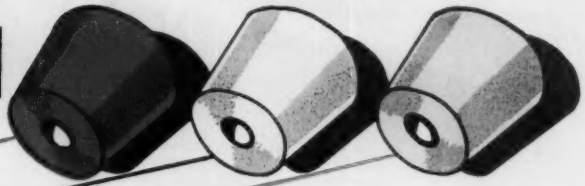
GEORGE M. DODSON

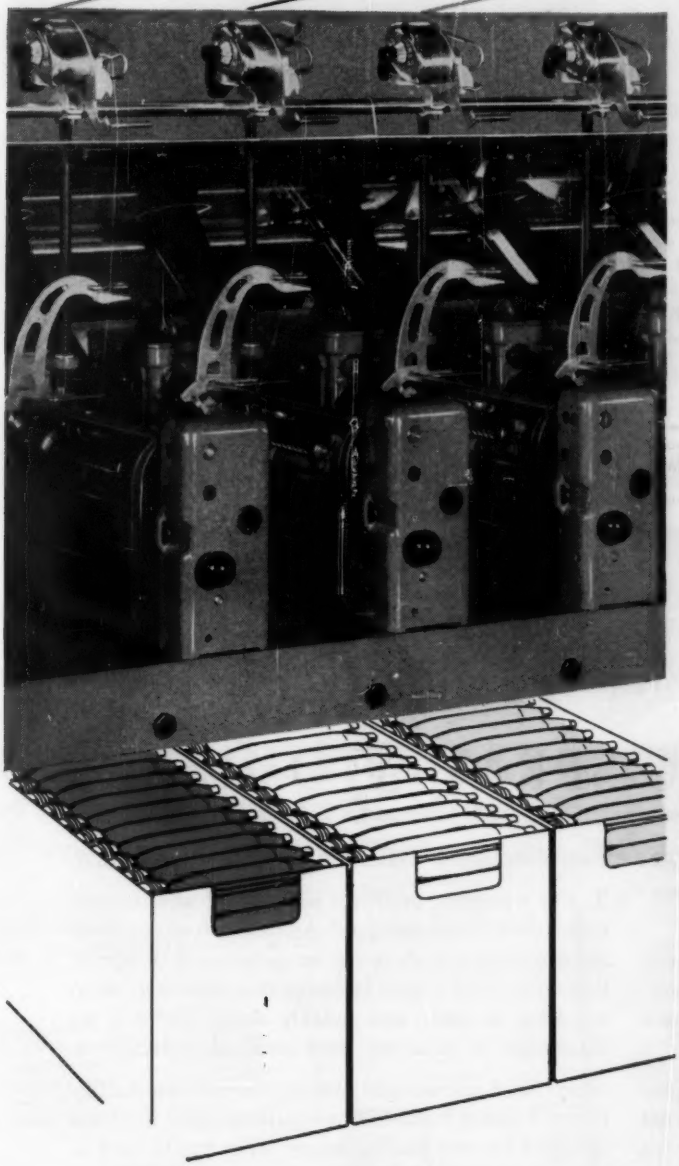
Harrisburg, Pa.



For more information, write direct or use Reader Service post card.

# AUTOCOPSER





## The World's Most

# VERSATILE QUILLER

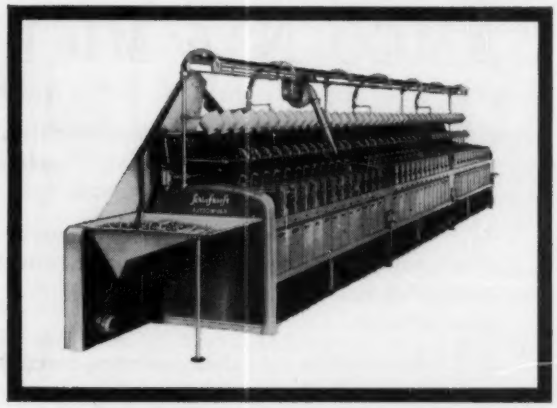
*Textile Mills problem No. 1 in a buyers' market:*

**ONE STYLE TODAY . . . . . .**

**ONE HUNDRED STYLES TOMORROW . .**

Only with the AUTOCOPSER in your quiller room can you follow the market trends at maximum efficiency, and lowest possible costs.

Write today to The Terrell Machine Co., Charlotte, N. C. for booklets explaining the outstanding features of the AUTOCOPSER!



Schlafhorst

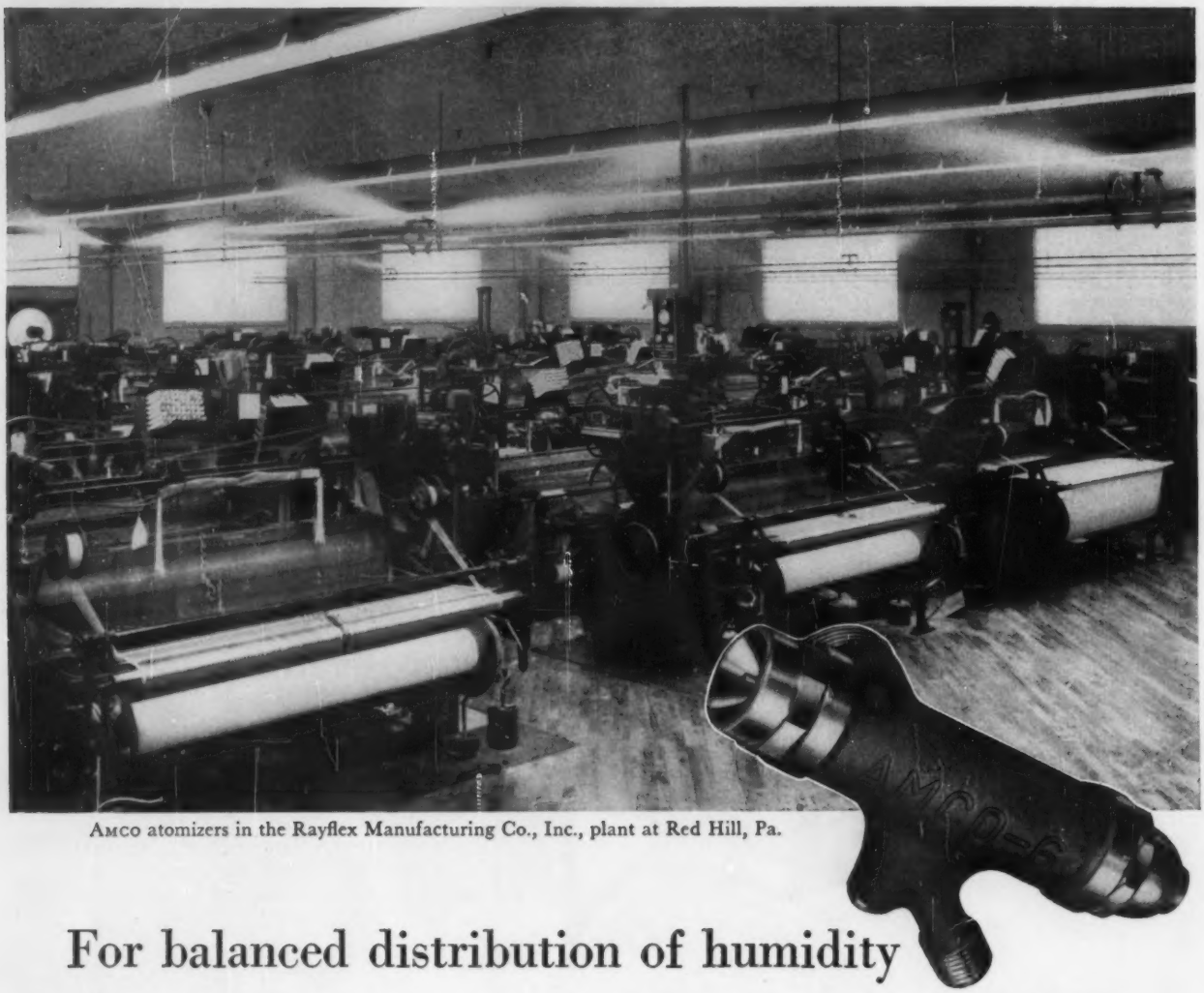
**AUTOCOPSER**

*First Name in Automatic Quillers the World Over*

**SOLD AND SERVICED BY THE TERRELL MACHINE COMPANY, INC., 3000 S. BLVD., CHARLOTTE, N. C.**



No. 3 in a series exp




AMCO atomizers in the Rayflex Manufacturing Co., Inc., plant at Red Hill, Pa.

# For balanced distribution of humidity

# AMCO Nº 6 MICRO-SPRAY ATOMIZERS

A humidifying system for textiles must meet stringent requirements. Some of these apply to the atomizers . . . the heart of many humidification systems:

**1.** Water vapor must be projected very uniformly, over a wide area. Amco No. 6 *micro-spray* atomizers accomplish this by delivering a smoke-like spray to a great distance.

**2.** Under conditions of varying moisture demand, the quality and distribution of the spray should not change. Amco No. 6 *micro-spray* atomizers are either completely "OFF" or fully "ON", operating only at their most efficient point and providing a constant, even distribution pattern in every part of the mill.

**3.** For economy, problems of cleaning and maintenance should be minimized. Amco No. 6 *micro-spray* atomizers are self-cleaning, on every cycle of operation, and are so simple in design that servicing, when required, is easily and quickly done. There is no diaphragm to wear and need eventual replacement.

Amco No. 6 *micro-spray* atomizers are the latest addition to a line of humidifying equipment that has been accepted for over half a century. They can be used as original equipment, as replacement or supplementary units on all types of systems. Write for complete details.

# AMCO

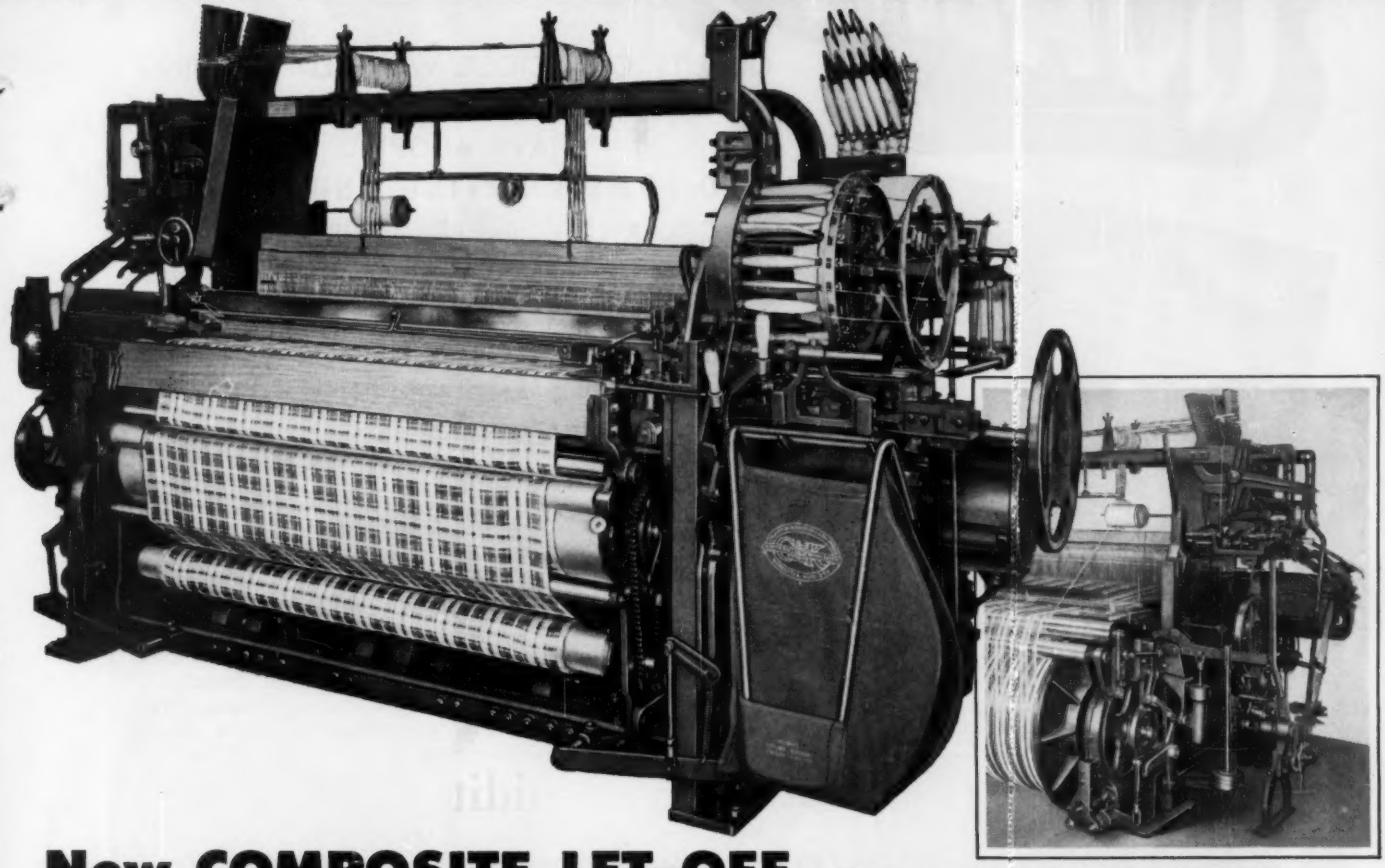
**AIR CONDITIONING SYSTEMS since 1888**

**Humidification • Evaporative Cooling (Ductless or Central Station) • Refrigeration**

AMERICAN MOISTENING COMPANY, PROVIDENCE, R. I. • ATLANTA • BOSTON • CAMDEN • CHARLOTTE • AFFILIATED WITH GRINNELL COMPANY, INC.

No. 3 in a series explai

# Why C&K's New Multi-Purpose Looms mean More Profit to any mill



## New COMPOSITE LET-OFF

**You saw it at Atlantic City on Spun Rayon Suitings, Upholstery, Filament Dress Goods and Cotton Denims . . . *and it is fully as effective* on Woolen or Worsted Fabrics, Lenos, Handkerchiefs and many other constructions.**

| THESE NEW M-P FEATURES CONTRIBUTE→TO THESE PROFIT FACTORS | Better Quality | Increased Work Assignments | Increased Production (Speed X Efficiency) | Lower Maintenance | Versatility |
|---|---|---|---|---|---|
| **Rotary Magazine:** For single color, or for multiple-color work (up to 4). | ✓ | ✓ | ✓ | ✓ | ✓ |
| **Scissors Thread Cutter** | ✓ | ✓ | ✓ | ✓ | ✓ |
| **Vacuum Filling Control** | ✓ | ✓ | ✓ | | ✓ |
| **Cone Picking** | | ✓ | ✓ | ✓ | |
| **More Rugged Basic Frame:** Common to all M-P Looms. | | ✓ | ✓ | ✓ | ✓ |
| **Letoffs:** New composite type. Also other standard and special types. | ✓ | ✓ | | ✓ | ✓ |
| **Takeups:** All purpose, silk, or lower winding roll. | ✓ | | | | ✓ |
| **Lay:** Precision-built and convertible — 1x1, 2x1, 4x1, 4x2, and 4x4 | ✓ | ✓ | ✓ | ✓ | ✓ |
| **Shedding Mechanisms:** Knowles Head — 25 Harness, 4/10" Space<br>Knowles Head — 20 Harness, 1/2" Space<br>Dobby — 20 Harness, 15/32" Gauge<br>Undercam<br>Jacquard | ✓ | ✓ | ✓ | ✓ | ✓ |
| **Feelers:** As required. | ✓ | ✓ | ✓ | | ✓ |
| **Driving & Shipping** | ✓ | ✓ | ✓ | ✓ | |
| PRECISION, STRENGTH, SIMPLICITY Throughout Every M-P Loom | | | | | |

Whatever you weave, here's *real news* for you . . . *this new composite let-off* on C&K **M-P** Looms. And here are the five operating advantages you get from this important new **M-P** feature:

1. New Composite Let-Off operates with **M**ore **P**recision on an exceptionally wide range of fabric weights and constructions.
2. It takes strain off warp ends as motion is mechanically powered to turn beam.
3. Range in picks per inch is greatly increased through improved roller clutch instead of increment-restricting ratchets.
4. **M**ore **P**ositive yarn delivery.
5. Provides whip roll location to afford longer shed line . . . with less strain on yarn.

This new Composite Let-Off helps make **M**ore **P**rofit from **M**ore **P**erfect cloth. And this is *only one* of the many new **M-P** features contributing to the five profit-factors which are the basic objectives of every mill. Check the chart at the left . . . and see all the ways in which new **M-P** Looms mean **M**ore **P**rogress in modern weaving.

*Crompton & Knowles*
*LOOM WORKS*
**WORCESTER 1, MASSACHUSETTS, U. S. A.**

**Charlotte, N. C. • Philadelphia, Pa. • Allentown, Pa.**
**Crompton & Knowles Jacquard & Supply Co., Providence, R. I.**
**Crompton & Knowles of Canada Limited, Montreal, Quebec**

**NOW!**

# QUALITY!

QUALITY CONSCIOUS WORSTED SPINNING MILLS LIKE THOSE LISTED BELOW HAVE ADOPTED

**SACO LOWELL ROVING AND SPINNING**

IN ORDER TO OFFER THEIR CUSTOMERS YARN OF A QUALITY THAT SETS A *"NEW STANDARD FOR EXCELLENCE"* AT A PRICE WHICH ASSURES A *PROFIT* FOR BOTH THE MANUFACTURER AND HIS CUSTOMER.

Saco-Lowell Installation at Lebanon Knitting Mill, Inc., Pawtucket, R. I.

Saco-Lowell Installation at William Heller, Inc., Woonsocket, R. I.

Saco-Lowell Installation at Wanskuck Co., Providence, R. I.

• ABBOT WORSTED MILLS • CHATHAM MANUFACTURING CO. • WANSKUCK CO., – STEERE MILL • LEBANON KNITTING MILL, INC. • WILLIAM HELLER, INC. • AMERICAN THREAD CO. • BROOKSHIRE KNITTING MILLS • PEERLESS WOOLEN MILLS, INC. • SOUTHERN WORSTED MILLS, INC. • LIVINGSTON WORSTED MILLS, INC. • DELAWARE MILLS, INC. • GOODALL-SANFORD INC. • COLLINS & AIKMAN CORP. • OAKLAND WORSTED CO. • WORCESTER TEXTILE CO., INC. • FABRIQUE AL QUERSH POUR TARBOUCHES, EGYPT • FILATURES PROUVOST & CIE., FRANCE • MANIFATTURA LANE UGO RISTA, ITALY • WANGARATTA WOOLEN MILLS, LTD., AUSTRALIA • JEREMIAH AMBLER & SONS, MIDLAND MILLS, BRADFORD, ENGLAND.

All these mills have found that new Saco-Lowell Roving and Spinning, with Ratch up to 9", completely adaptable for processing all of the commercial grades of wool, all types of synthetic fibers, as well as simple and complex blends with unimpaired efficiency.

Manufacturers of worsted and blended yarns, seeking BETTER QUALITY at worthwhile savings will find, through a survey made by Saco-Lowell engineers and technicians, the means to reach their objective.

Their services are readily available upon request.

# SACO-LOWELL

60 BATTERYMARCH STREET, BOSTON 10, MASS.

Shops at BIDDEFORD and SACO, MAINE, and SANFORD, N. C.

SALES OFFICES: CHARLOTTE • GREENSBORO • GREENVILLE • ATLANTA

PRECISION, STRENGTH, SIMPLICITY Throughout Every M-P Loom

WORCESTER 1, MASSACHUSETTS, U. S. A.
Charlotte, N. C. • Philadelphia, Pa. • Allentown, Pa.
Crompton & Knowles Jacquard & Supply Co., Providence, R. I.
Crompton & Knowles of Canada Limited, Montreal, Quebec

NOW!

# NOPCO® RESIN VA

gives a firm "hand" to your cottons and rayons

. . . IS NON-YELLOWING, TOO

Test slides show comparative whiteness of Nopco Resin VA and two competitive finishes.

To give your fabrics the attractive, durably crisp finish you'd like them to have, we're sure one trial will convince you that Nopco's new Resin VA "does it best."

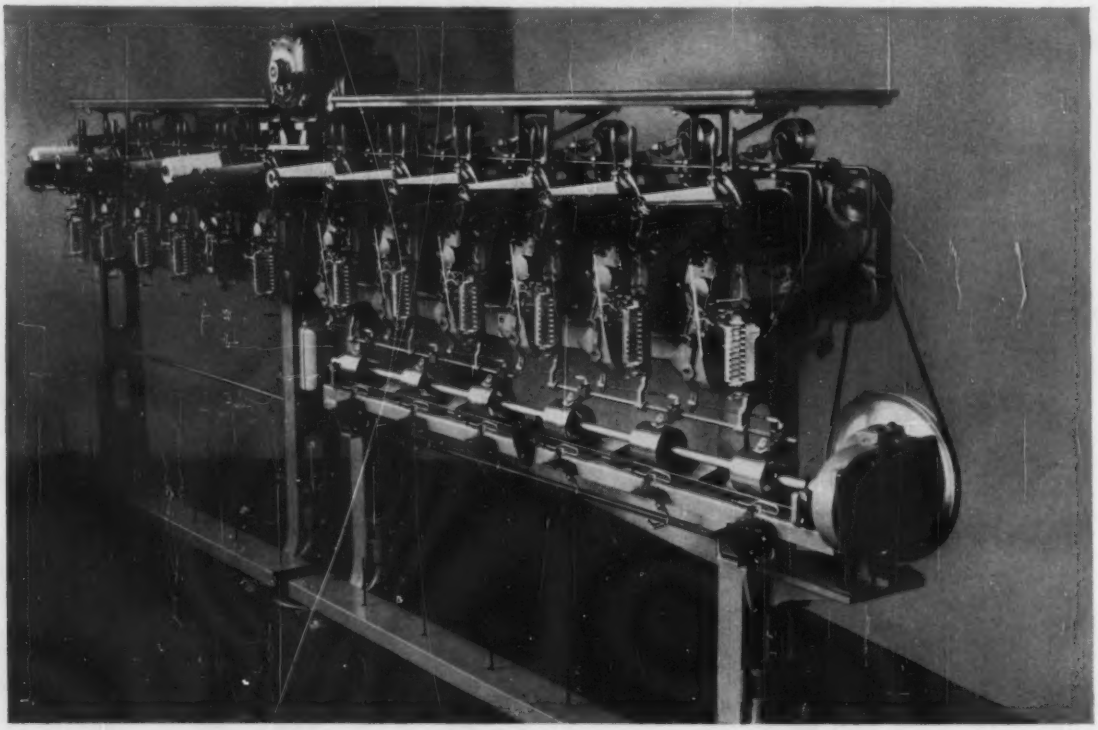
Nopco VA is an improved polyvinyl acetate emulsion, perfected by Nopco research to do this specific task. No troublesome preparation... merely mix with water and apply to the fabric. You'll find it non-yellowing. You'll find it gives clearer, less hazy results than other finishes you may have used.

In use, Nopco VA dries to form a strong continuous film on the fabric, durable to washing. Even though washing may break the film somewhat, ironing re-forms the film by fusing the resin... restores the original crisp "hand." It's economical too, since it gives maximum crispness with the least amount of solid resin.

Write today for full information and testing samples. Nopco Chemical Company, 156 Fuller St., Harrison, N. J.

NOPCO

PLANTS: Harrison, N. J., Cedartown, Ga., Richmond, Calif.



# World's Most Versatile Precision Winder – The Leesona No. 50

Designed to build the greatest variety of precision wound packages of natural and synthetic yarns, the Leesona No. 50 Winding Machine can be adapted to the changing requirements of any of these materials — and even of jute and paper. Shipping cones wound on the No. 50 contain the greatest weight of yarn in a given space, and the precise regularity of the wind adds valuable sales appeal to the compact packages.

### Four New Performance-Improving Attachments

*Vertical Tension Control* allows independent adjustment of tension and pressure, providing more precise control from start to finish of package. Simple to operate, with calibrations making it easy to record settings for future use.

*Free-Turning Roller Bail* has ball bearings seated in bail holder, rather than in end of roll. This reduces bearing surface speed and lengthens bearing life. Sealed bearings, besides protecting yarn from oil absorption, need no further lubrication.

*Automatic Quick-Doffing Arbor* for dye cones and tubes. Contracts when starting handle is pushed, releases finished package easily. When handle is released, arbor expands automatically, to hold new carrier securely.

*Soft Pressure Attachment* winds filament yarn to a low density for uniform high pressure dyeing. Permits very close control over winding pressures and tensions, resulting in packages of correct density from each spindle.

Get further facts on the Leesona No. 50 — the flexible, all-purpose precision winder now winding a major percentage of the world's coned synthetic yarns and used by all leading thread mills. See your Universal Representative or write direct for bulletin.

**UNIVERSAL WINDING COMPANY**

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*Agents in every principal textile center throughout the world*
*Winding and Twisting Machinery for Natural and Synthetic Yarns*



Now...continuous dyeing of

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Your mail, samples and parcels—*under 5 lbs.*—often earn a lower rate as Air Mail or Air Parcel Post than as cargo. Call your Postmaster for details.

**Scheduled DC-6A** all-cargo services to Europe . . . Shannon, London, Glasgow, Amsterdam, Brussels, Frankfurt, Nuremberg and Stuttgart direct.

**Other scheduled all-cargo**—Clippers to Latin America and Alaska. In addition, 40 regular Clipper* flights daily provide *extra tons of cargo lift* to 84 countries around the world. *Cargo and mail space is available on every Pan American Clipper.*

**Lower costs**—achieved by lighter packing, lower insurance rates, less handling, less trans-shipment and less chance of pilferage.

**Swift deliveries**—for better customer service, less money in inventory, less stock in warehouses.

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**411 helpful offices** around the world.

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## PAN AMERICAN

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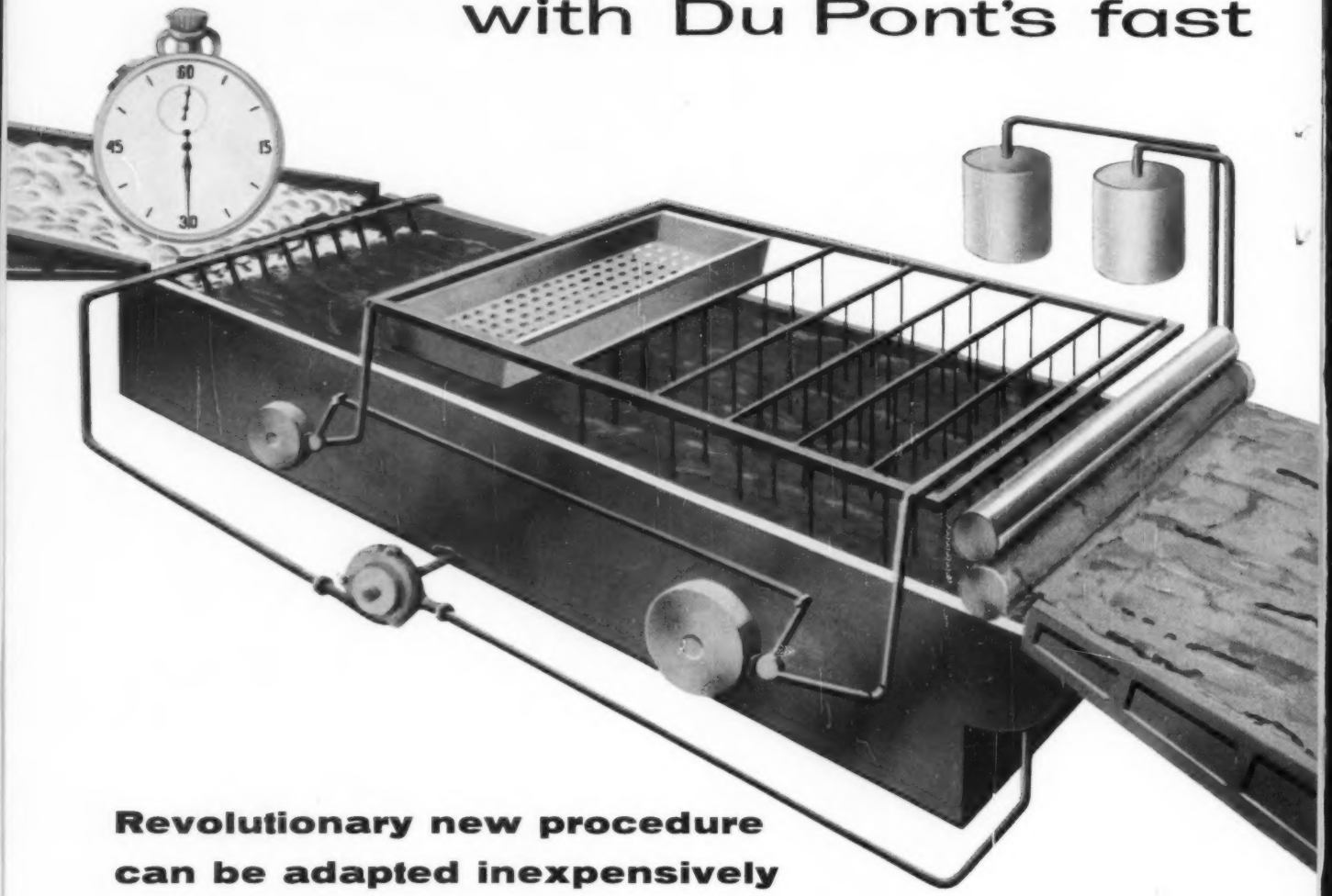
wool raw stock a reality

# Now...continuous dyeing of

# with Du Pont's fast




**Revolutionary new procedure can be adapted inexpensively —greatly reduces dyeing costs**

Working with leading rug manufacturers, Du Pont dyeing specialists have perfected a technique that permits the *continuous* dyeing of raw wool in just 90 seconds! It's made possible by Du Pont's new "CAPRACYL" dyes that go to the fiber quickly and evenly . . . give fastness equal to the batch method.

Only a few hundred dollars' worth of equipment is required to convert to the new dyeing procedure. By converting to the continuous method with "CAPRACYL" colors, dyeing costs have been cut in half!

In the new process, the last bowl on the scouring train is made into a dye bath – only two stainless steel feed tanks and two siphons need to be added. The wool comes out ready to be dried and spun.

In addition to cutting handling and steam costs and saving valuable time, "CAPRACYL" dyes do away with long boiling which tends to make wool brittle. The essentially neutral-dyeing, metalized "CAPRACYL" line can produce the most popular rug, home-furnishing and wearing-apparel colors.

Du Pont technical representatives will be glad to discuss the possibility of adapting the continuous process to your stock dyeing. For further information, write E. I. du Pont de Nemours & Co. (Inc.), Dyes and Chemicals Division, Wilmington 98, Del.

*REG. U. S. PAT. OFF.

DU PONT
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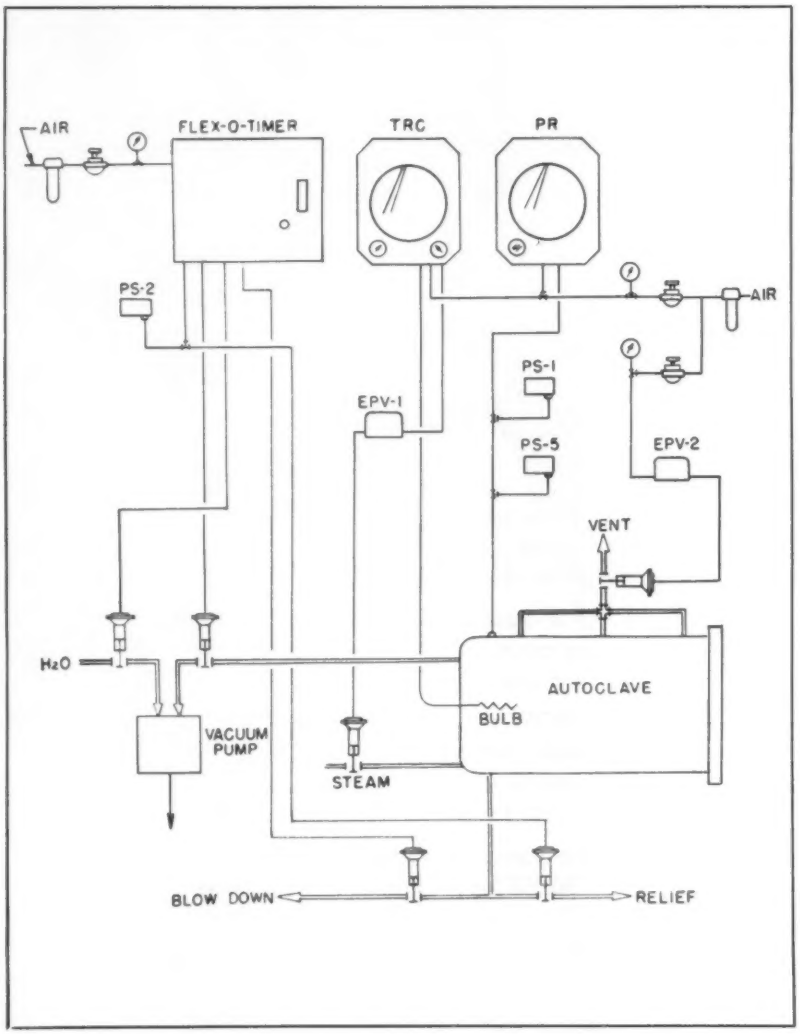
*Du Pont Dyes*

**BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY***

wool raw stock a reality

new "CAPRACYL"* colors

# New Burlington VacuSet sets twist automatically with Taylor controls




TO set the twist in the new elastic yarns, thorough steam penetration is necessary. Burlington Engineering Company's new pre-shrinking and setting machine accomplishes this by means of a strong, pump-created vacuum. When the vacuum is released steam rushes in and penetrates all the yarn in the machine.

This whole operation is completely automatic. All the operator does is load and unload the machine.

The Burlington Engineering Company state that "these tested, automatic Taylor controls insure the success of your operation. They permit the synchronizing of operations so that the work load for an operator can be planned for the most efficient use of his time with minimum physical and mental effort."

Over twenty mills are now using this system.

There are many applications throughout the textile industry where Taylor controls are doing an outstanding job in maintaining uniformly high quality, saving operator time and consequently cutting costs. Call in your Taylor Field Engineer, or write Taylor Instrument Companies, Rochester, N.Y., or Toronto, Canada.

A FULSCOPE* Limited Range Sensitivity Controller controls the temperature (or pressure), while a FLEX-O-TIMER* Time Cycle Controller accurately times the sequence of the preshrinking and setting operation. A Pressure Recorder records pressure throughout the entire cycle and signals the vacuum set point, at which time it starts the pressurizing period through the Time Cycle Controller.

• • •

*Instruments for indicating, recording and controlling temperature, pressure, flow, liquid level, speed, density, load and humidity.*

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*Taylor Instruments*
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IN HOME AND INDUSTRY

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# trickle?

# or torrent?

## the Ingersoll-Rand MOTORPUMP

## gives you the capacity you need... the value you want!

When you want to move a few gallons of fluid . . . or up to 2800 gpm with heads to 650 feet, it will pay you to investigate the Ingersoll-Rand MOTORPUMP.

The MOTORPUMP is compact and efficient. Size-for-size it stands out by consistently moving more gallons per kilowatt of power used.

In value, too, the MOTORPUMP is a best buy. From impeller locknut to motor bearings, every MOTORPUMP is designed from experience to do the toughest job—for the longest time—at the lowest maintenance cost.

Now, when operating costs must come down, investigate the Ingersoll-Rand MOTORPUMP and its applications in your plant. Call your nearest I-R Branch Office for complete information, or write direct to:

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• End-to-end, top-to-bottom, the MOTORPUMP is crammed with design features and construction advantages that make it a better buy.

9-107A

ALLIS-CHALMERS

TEXTILE DRIVES

All

# Increase Quality and Production ... Cut Maintenance

**Power Packages** . . . Get complete coordinated equipment from power line to the driven shaft of your textile machinery. Allis-Chalmers textile drives result from thorough knowledge of power requirements throughout the plant. Each unit described here has been designed to get maximum efficiency, output and continuity of service from a specific type of machine. Motor, control and drive characteristics are all tailored to the job, and long operating experience has proved their effectiveness.

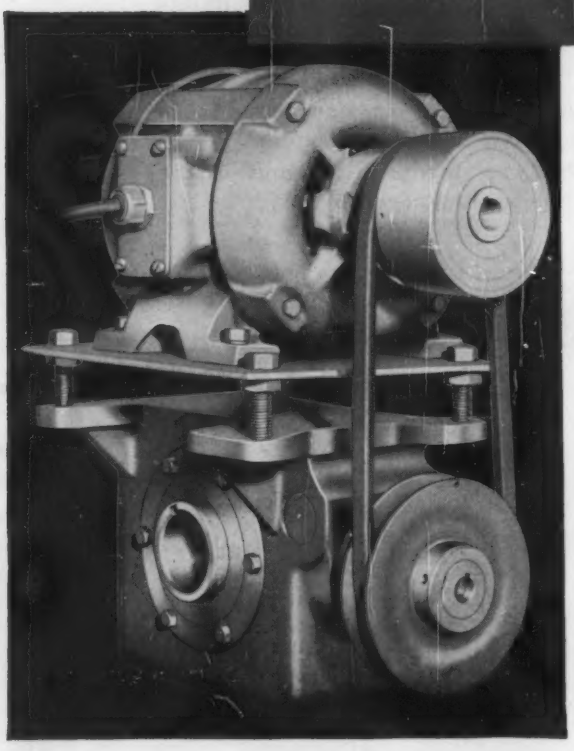
**Backed by Certified Service**

Allis-Chalmers distributors and district offices in all major textile areas offer skilled application help. Well-equipped and conveniently located Certified Service Shops provide factory-approved methods and parts to keep your drive equipment operating at top efficiency.

**Get This Literature**

Handy Guide to Motor Selection (Bulletin 51B6052) —*Quick-Clean* Textile Motors (51B6055B) —Across-the-Line Starters (14B7132) —Reduced Voltage Starters (14B7215) — and *Vari-Pitch* Drive Engineering Data (20B7499). Call your nearby A-C District Office or write Allis-Chalmers, Milwaukee 1, Wis.

CARDING



## Individual Card Drives Make Card Rooms Cleaner, Safer

Individual card drives do away with unsightly and dangerous overhead line shafting and long belts. No hard-to-clean ceiling structure to drop dirt and grease in machines — better lighting and plenty of ceiling room to install air conditioning.

**Features**

*Quick-Clean* motor drives gear reducer through *Texrope* drive and mercury clutch. Sheave adjustable for cylinder speeds from 157 to 189 rpm.

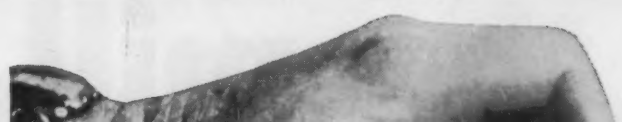
- Complete unit mounts on present card cylinder shaft and fits present aisle space.
- No vibration or strain on card arch, and weight of drive does not overload bearing.

*Quick-Clean, Vari-Pitch and Texrope are Allis-Chalmers trademarks.*

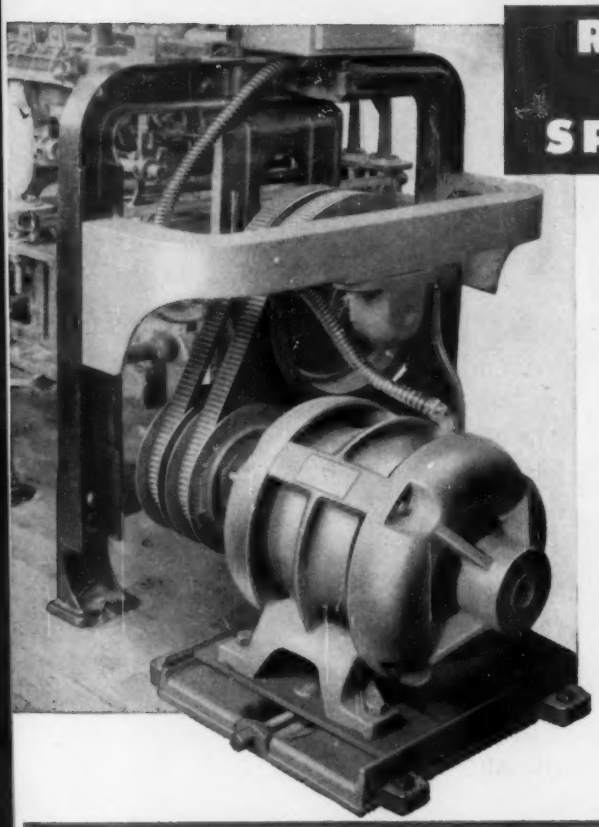
A-C ALLIS-CHALMERS

ALLIS-





# through the mill



## ROVING and SPINNING

### Lint and Dirt Can't Stop *Quick-Clean* Textile Motors

Wide open air passages and powerful fans sweep dirt and lint right through and OUT of these motors. They end motor problems created by lint-laden atmospheres.

**Features**

Bearings: sealed, prelubricated double-width single-row ball bearings operate long periods without attention of any kind. May be cleaned and repacked if required.

- Slow-acceleration motor for roving frames. Takes almost three times as long as standard motor to reach speed. No special control required.
- *Texrope* V-belt drives and correct control supplied to meet complete machine drive needs.

## WEAVING

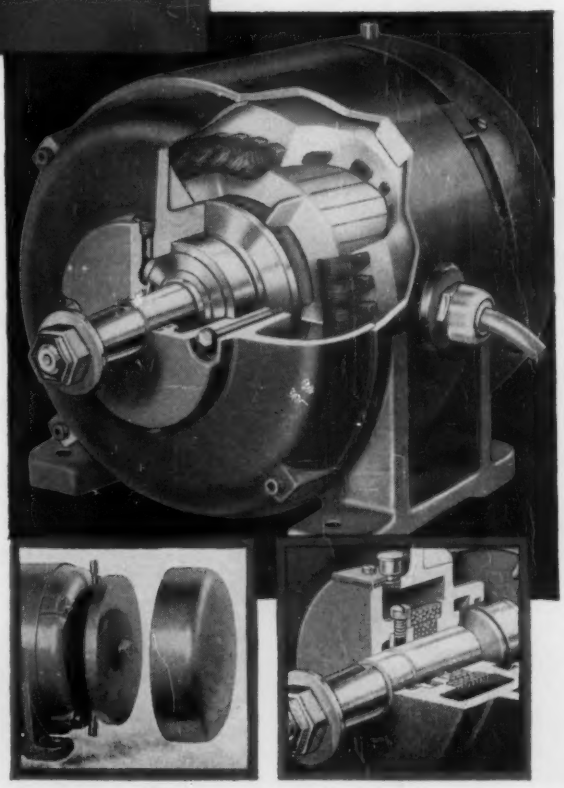
### New Motor Design Licks Problems of Modern High Speed Operation

Oversize rotor, stator and bearings built to handle rapidly oscillating load of loom speeds as high as 200 picks per minute and more. Rotor diameter is as great as possible for added flywheel effect, and slip has been regulated to produce minimum speed variation. Nearly two years of field testing prove the operating economies possible.

**Features**

Totally enclosed, non-ventilated design excludes all lint from interior.

- Stator double insulated, extra large, heavy construction.
- Die cast rotor of large diameter and proper slip maintains stable speed under pulsating load.
- Oversize ball bearings of double-shielded type protect against over-greasing that causes bearing trouble.
- Optional: (1) flywheel for added inertia and (2) waste-packed bronze sleeve bearing.



A-4538

# CHALMERS

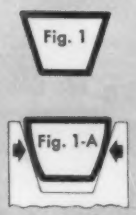


For more information, write direct or use Reader Service post card.

# this simple idea cuts V-Belt costs

## — as a V-Belt bends, feel its sides change shape!

Pick up *any* V-Belt that has straight sides (Fig. 1) and bend it as if it were going around a pulley. At the same time, *grip its sides* with your fingers! You will feel the sides *bulge out* as in Fig. 1-A. Clearly, the bulging belt is forced to press *unevenly* against the V-pulley—and this concentrates wear at the points shown by arrows (Fig. 1-A).





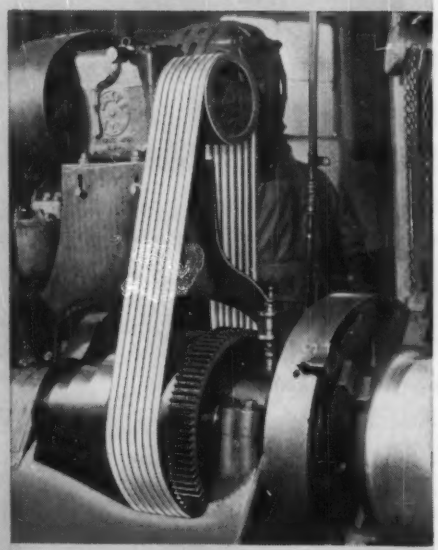


## Now bend the belt with CONCAVE SIDES

(U.S. PAT. 1813698)

## . . . the GATES VULCO ROPE (Fig. 2)

Instead of *bulging*, the precisely engineered CONCAVE SIDES merely *fill out* and become perfectly straight. This belt, when bent, *precisely fits* its sheave groove (Fig. 2-A). The sides press *evenly* against the V-pulley. Therefore, wear is distributed *uniformly* across the full width of the Gates Vulco Rope—and this means longer belt life and *lower belt costs* for you!



Typical Gates Vulco Rope Drive—the Gates V-belts are built with Concave Sides to insure longer belt wear.

**When you buy V-belts, be sure to get the V-belt with the CONCAVE SIDES — the Gates Vulco Rope!**

VULCO ROPE DRIVES

Gates

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Gates Engineering Offices and Jobber Stocks are located in all industrial centers of the United States and Canada, and in 70 other countries throughout the world.

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DENVER, U.S.A.
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*News about*

# B. F. Goodrich Chemical *raw materials*

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*News about*

# B. F. Goodrich Chemical *raw materials*

## SEE WHAT GEON LATEX CAN DO

***...to improve cotton and rayon products***

GEON polyvinyl latex is used successfully to improve or develop more saleable cotton and rayon products. The list shown here suggests some of the applications for this versatile material.

We'll gladly send you a booklet which gives more details. And, we'll help you with technical information, and the selection of the Geon latex best suited to your requirements. For the booklet or information, please write Dept. BY-1, B. F. Goodrich Chemical Company, Rose Building, Cleveland 15, Ohio. Cable address: Goodchemco. In Canada: Kitchener, Ontario.

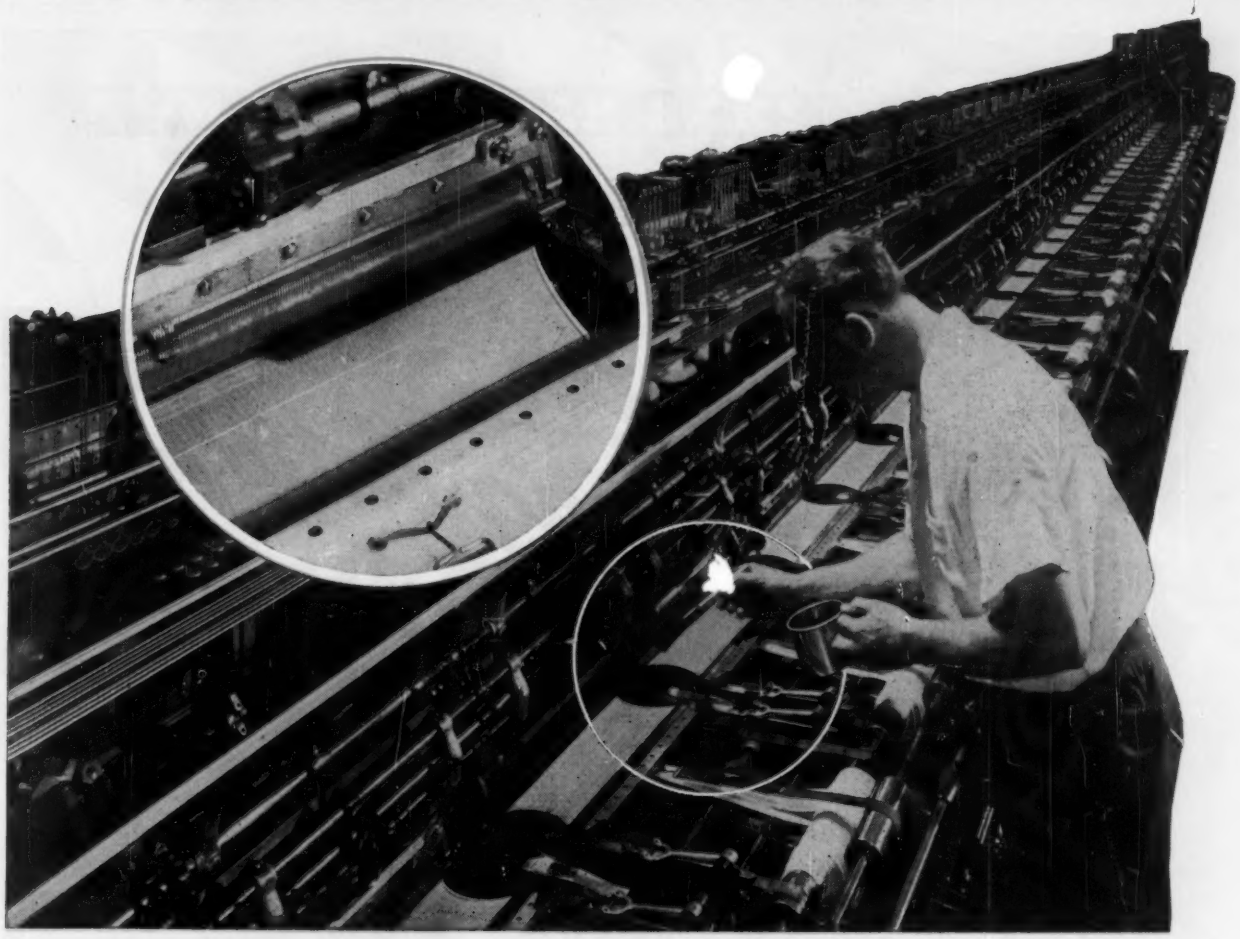
| USE | FUNCTION |
|---|---|
| **cotton** | *filler to provide stiffness.* |
| **cotton • rayon** | *binder for pigment coloring and printing.* |
| **cotton** | *carrier for specialty active agents such as fungicides and flame proofing chemicals.* |
| **cotton • rayon** | *binder for non-woven fabrics.* |

**B. F. GOODRICH CHEMICAL COMPANY** A Division of The B. F. Goodrich Company

Geon Polyvinyl Materials

**GEON RESINS • GOOD-RITE PLASTICIZERS . . . the ideal team to make products easier, better and more saleable.**
**GEON polyvinyl materials • HYCAR American rubber • GOOD-RITE chemicals and plasticizers • HARMON colors**

. . . Over half a century in developing proper service by locating plants, equipment, and stocking them all for the convenience of the Textile Field.



# For smoother knitting and fewer seconds use non-staining

# GULFTEX OIL

Full-fashioned hosiery mills using Gulftex Oil report that it keeps needles clean and smooth, thus contributing to smoother knitting with fewer seconds.

Gulftex Oil also resists gumming and aids in the prevention of buildup of size on the needles. And its superior non-staining characteristics make it a valuable lubricant for any application where the staining of fabrics is a problem. It is easily applied with spray or brush.

Make your next order for needle oil an order for more effective lubrication by specifying Gulftex. Call your nearest Gulf office and have a Gulf Sales Engineer demonstrate the advantages of Gulftex Oil in your mill. Gulf Oil Corporation · Gulf Refining Company, 1822 Gulf Building, Pittsburgh 30, Pennsylvania.

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Junior Achievement Week
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*The finest petroleum products for your every need*

*Setol Cleanser* HAS WHAT IT TAKES
TO MACHINE-SCRUB OILY FLOORS—

# *Faster cleaning action!*

## Cuts operating time of the scrubbing machine

Because *Setol* is specially compounded for the greater speed of *combination-machine-scrubbing*, it must *and does* work faster than average alkaline cleansers. *Setol* saponifies *and emulsifies* grimy oil and grease *instantaneously*. The wetting agent in *Setol floats the oil* for fast, easy, *and thorough* removal by the vac of a *combination machine* or with a separate vac unit. And because *Setol* stays fast-acting longer—does not spend its strength quickly as do ordinary oil and grease solvents—less is required to clean a given area. Thus *Setol* saves on materials and, by speeding the cleaning process, cuts operating time of the scrubbing machine . . . reduces labor costs . . . and saves on brushes. Best of all, *Setol gets floors oil-free clean!* Also acts as a disinfectant (contains pine oil), and leaves a pleasant, clean aroma.

- **A constant, fast-acting cleanser for machine-scrubbing cement, wood, wood block, metal, stone, and terrazzo floors**
- **Consistent use on cement floors prevents cement dusting . . . provides a finish that helps seal out waste materials**

*Finnell 213P Scrubber-Vac*

**Applies cleanser, scrubs, and picks up—in ONE operation!**

For demonstration, consultation, or literature, phone or write nearest *Finnell Branch* or Finnell System, Inc., 1901 East Street, Elkhart, Indiana. Branch Offices in all principal cities of the United States and Canada.

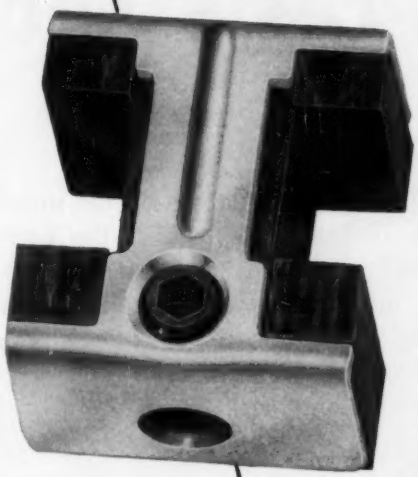
**FINNELL SYSTEM, INC.**
*Originators of Power Scrubbing and Polishing Machines*

Everything FINNELL for Floor Care

BRANCHES IN ALL PRINCIPAL CITIES

FROM LITTLE CAP BARS

# BIG High Draft Spinning Profits GROW



*Roberts Company is the only manufacturer making all of the components of a complete drafting system changeover including No-Oil Cap Bars and Saddles. Roberts Company is the only changeover manufacturer that* CAN *and* DOES *stand in back of its complete drafting system package.*

Any type of High-Draft Spinning requires positive alignment of top and bottom rolls plus adjustable spacing of front and middle top rolls to a positive setting.

Only CAP BARS can provide those two requirements — POSITIVELY! Don't take the risks required by the variety of alignment gadgets on the market, when Roberts No-Oil Cap Bars and Saddles are the only sure guarantee of POSITIVE alignment and spacing of top and bottom rolls. Roberts No-Oil Cap Bars and Saddles eliminate 90% of the problems formerly encountered with cast iron cap bars, provide all the benefits and savings of elimination of top roll oiling, and provide the weight distributions needed for successful high draft.

Cost-wise, Roberts No-Oil Cap Bars and Saddles with Hardened Steel Solid Top Rolls are much lower in first cost, roll cots are buffed more accurately and cheaper, and replacement parts cost a fraction of the gadget systems.

Roberts Company has equipped more than 1,400,000 spindles with the Roberts High-Draft System. It is the simplest to install and to maintain; it is the system most familiar to the spinners themselves; it is the most gadget-free high-draft available, and is the lowest in cost.

*Switch to . .* **Roberts High-Draft Changeovers**

**ROBERTS COMPANY**
**Sanford, North Carolina, U. S. A.**

**No matter what you're running, natural or synthetic fibers . . .**

# Get maximum lap resistance

Whether you're spinning natural or synthetic fibers, Armstrong J-490 Cots will give you top-quality yarn and maximum lap resistance, particularly on frames equipped with revolving clearers. Here's why:

J-490 Accotex cots actually tend to repel broken ends because their special synthetic rubber compound contains certain electrolytes that neutralize the electrical attraction between cots and fibers. The illustrations on the opposite page show how this happens.

Fibers don't build up on the smooth surface of J-490 cots because the J-490 compound contains no fillers that can roughen the drafting surface. J-490 cots won't pull short fibers from the roving and cause excessive end breakage. The result is cleaner, more uniform yarn.

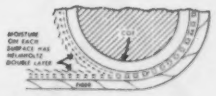
Of course, you'll get long service life with J-490 cots. Oils, dyes, and commonly used textile chemicals do not affect them. Re-buffing is seldom required more than once a year.

Send for booklet, "Armstrong Textile Roll Coverings and Mill Supplies." Gives suggestions on selection, installation, and maintenance of Armstrong Textile Products. Write Armstrong Cork Company, Industrial Division, 6501 Dauphin Street, Lancaster, Pennsylvania.

Armstrong **ACCOTEX COTS**

*. . . used wherever performance counts*

THIS COT LAPS



Moisture layers on fiber and cot contain electrical charges. When pressed together in spinning, these charged moisture layers tend to adhere to each other. When an end breaks, this attraction is strong enough to cause lapping.

# with J-490 Accotex cots

THIS COT DOESN'T LAP

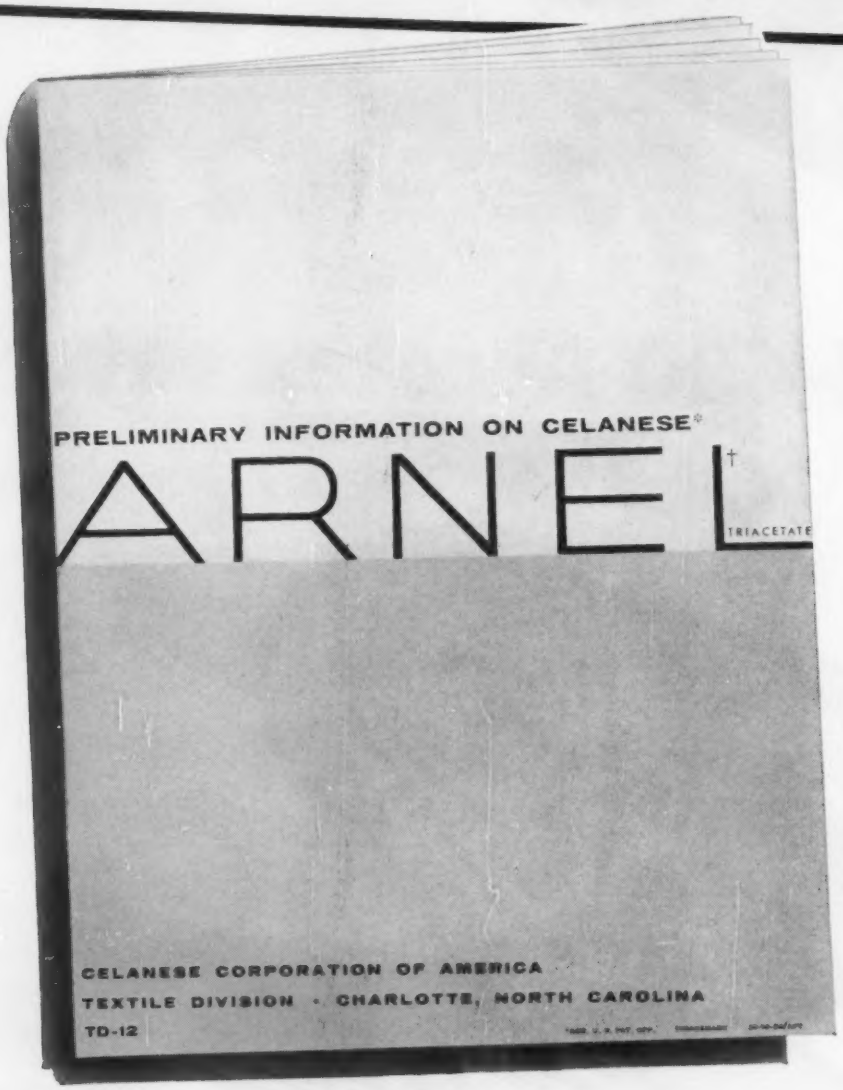


Electrolytes incorporated in patented Accotex® composition neutralize the electrical charge in the moisture layer on the cot. This eliminates the inherent attraction between the moisture layers. The cot actually tends to repel the fiber.

# ARNEL†

TRIACETATE

## Information available now




The basic data on Celanese* Arnel triacetate is now available to the trade in booklet form. Physical and chemical characteristics, performance, processing procedures and indicated end-products of the new fiber are described. Although application techniques are constantly being developed, this booklet serves as a preliminary introduction to the fiber and its applications. For a copy, write to the district sales office nearest to you.

*Reg. U. S. Pat. Off.

Celanese

CORPORATION OF AMERICA, NEW YORK 16

CHARLOTTE, N. C., BOX 1412
BOSTON, MASS., 140 FEDERAL ST.
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A Caprolactam Fiber project for the

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wherever textiles are made!

Cones — tubes — spools — specialties — for more than a half century SONOCO has been the leader in supplying precision paper textile products to an ever-changing industry. Continuing research and product development has enabled SONOCO to keep pace with modern production. Our technical services are available to you simply by discussing your requirements with one of our experienced sales engineers or by writing direct.

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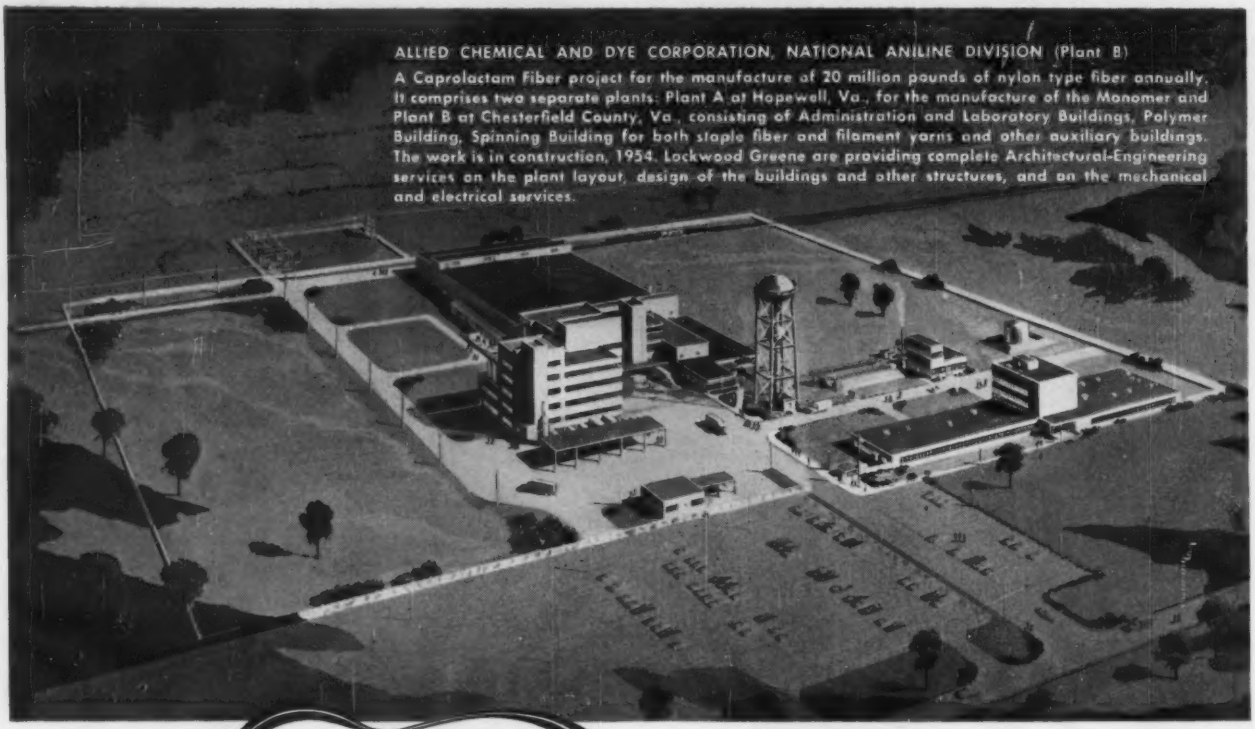

ALLIED CHEMICAL AND DYE CORPORATION, NATIONAL ANILINE DIVISION (Plant B)

A Caprolactam Fiber project for the manufacture of 20 million pounds of nylon type fiber annually. It comprises two separate plants: Plant A at Hopewell, Va., for the manufacture of the Monomer and Plant B at Chesterfield County, Va., consisting of Administration and Laboratory Buildings, Polymer Building, Spinning Building for both staple fiber and filament yarns and other auxiliary buildings. The work is in construction, 1954. Lockwood Greene are providing complete Architectural-Engineering services on the plant layout, design of the buildings and other structures, and on the mechanical and electrical services.

**LOCKWOOD GREENE**

**Projects**

**in**

**SYNTHETIC FIBERS**

**Starting with the American Bemberg Corporation plant (Div. of Beaunit Mills, Inc.) in 1925, Lockwood Greene have designed and supervised the construction of many notable synthetic fiber plants at home and abroad, including, with those shown:**

**American Enka Corporation, Enka, N. C.**
**Beaunit Mills #1 & #2, Coosa Pines, Ala.**
**Celanese Corp. of America, Rome, Ga.**
**Chemstrand Corporation, Decatur, Ala.**
**National Rayon Corp., Ltd., Bombay, India**
**North American Rayon Corp. (Div. of Beaunit Mills; Inc.)**

**LOCKWOOD GREENE**

**ARCHITECTS-ENGINEERS**

| BOSTON 9, MASS. | NEW YORK 20, N. Y. | SPARTANBURG, S. C. |
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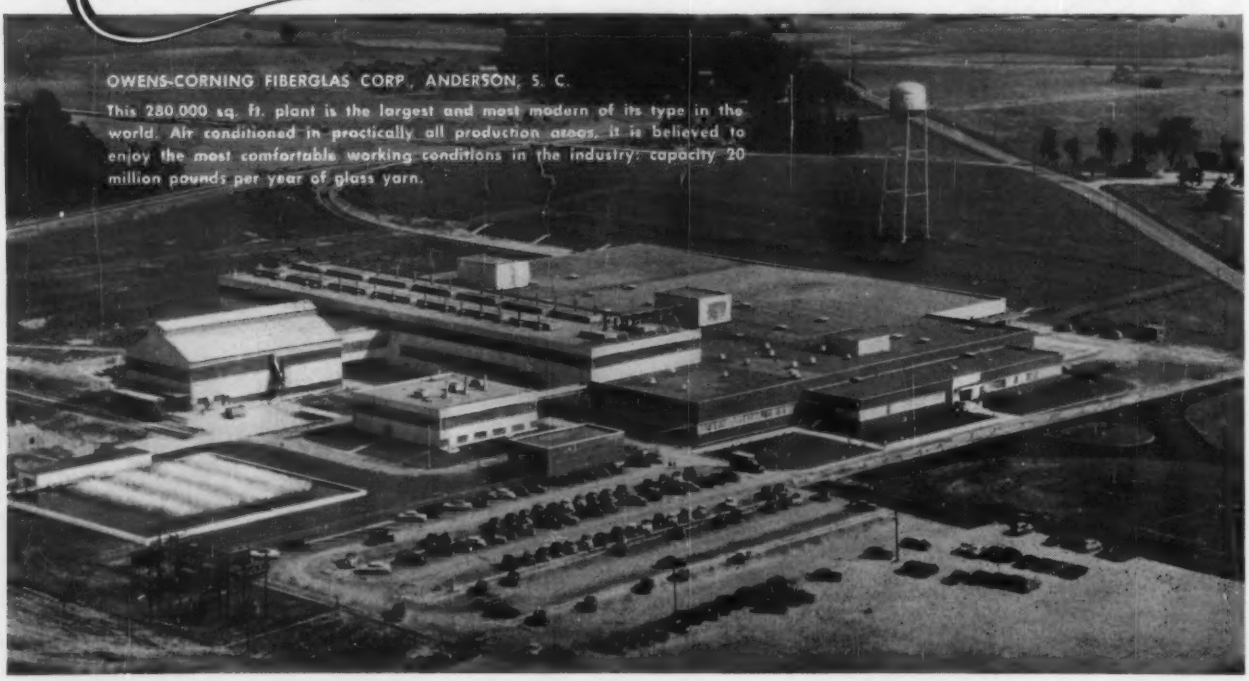
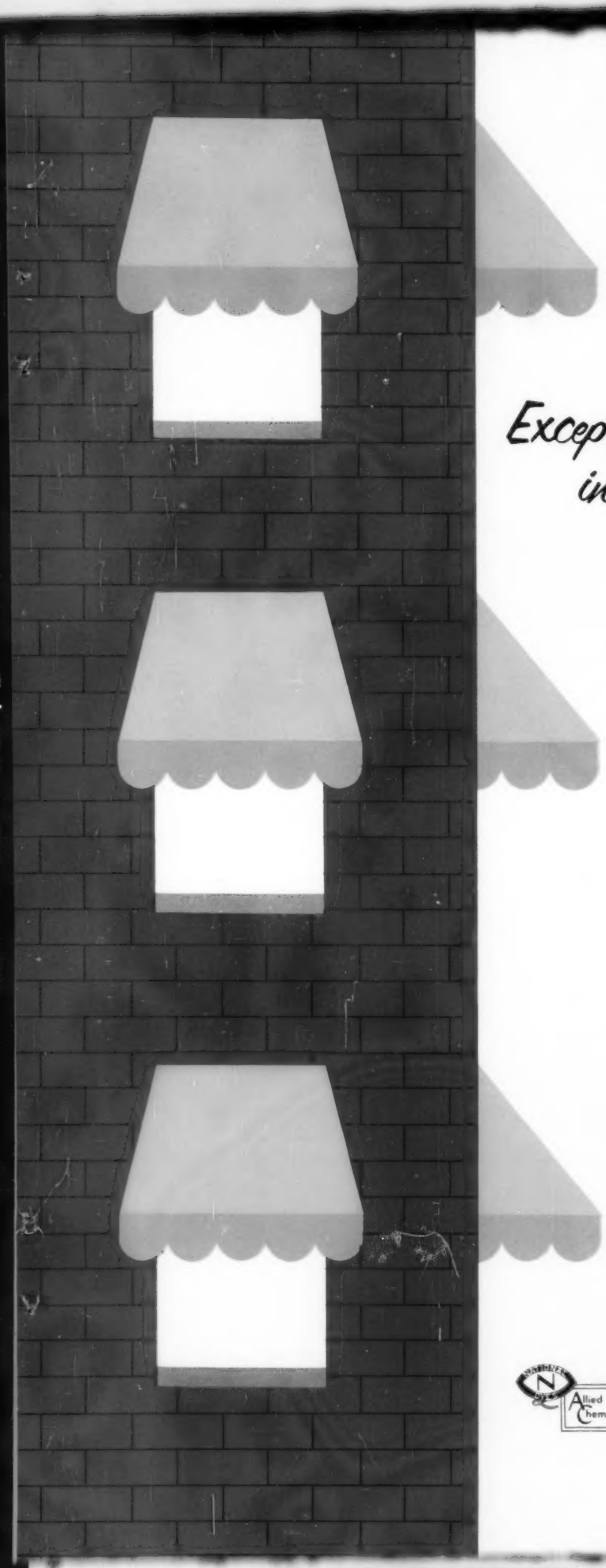
| 40 Central Street | 10 Rockefeller Plaza | Montgomery Building |



OWENS-CORNING FIBERGLAS CORP., ANDERSON, S. C.

This 280,000 sq. ft. plant is the largest and most modern of its type in the world. Air conditioned in practically all production areas, it is believed to enjoy the most comfortable working conditions in the industry: capacity 20 million pounds per year of glass yarn.



*Exceptional all-around fastness in a vat yellow*

# NATIONAL CARBANTHRENE YELLOW 3R PASTE

Those 8 words summarize the story of this unusual National anthraquinone vat dye. On cotton or rayon, it produces very reddish shades of yellow with excellent fastness to light, washing, boiling soap, stoving, chlorine and peroxide bleaching, mercerizing and cross dyeing. So it gives excellent results on fabrics that will be subjected to sun and weather, severe laundering and hard usage.

NATIONAL CARBANTHRENE YELLOW 3R PASTE can be dyed by all the usual dyeing procedures in all types of dyeing equipment. It is unaffected by the presence of metals in the dye bath, little affected by resin finishes or rubberizing.

Our nearest office will be glad to supply samples, technical bulletin, shade card and prices.

**NATIONAL ANILINE DIVISION**
ALLIED CHEMICAL & DYE CORPORATION
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Portland, Ore. Greensboro Charlotte Richmond Atlanta
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*Executive and General Offices*

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Start with the problem. For example, resistance to corrosion in contact with copper sulfate. Just set the slide at the proper index number shown on the Selector (in this case on the back), and you have the answer in a second – grades 302 and 316 are fully resistant to this form of attack.

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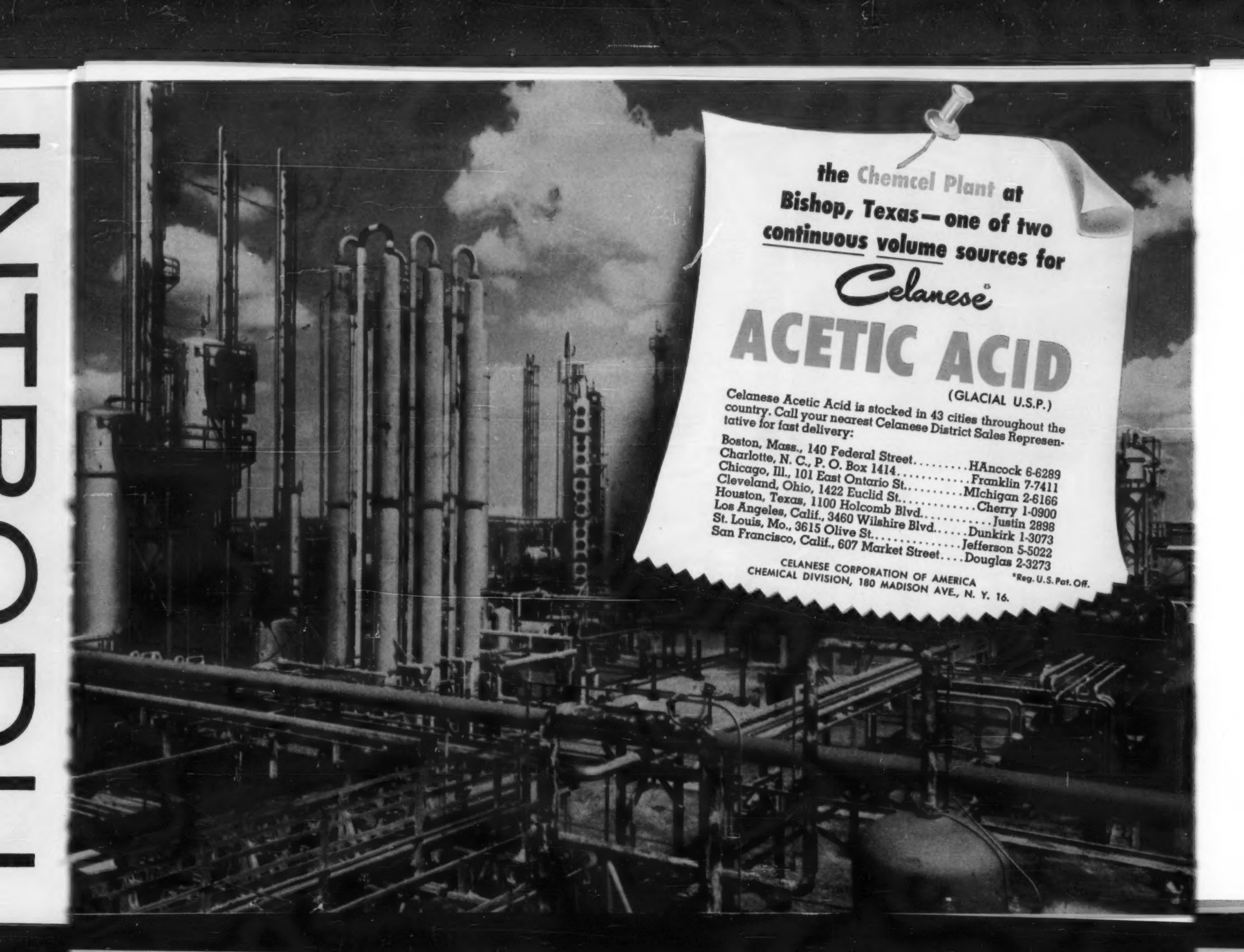
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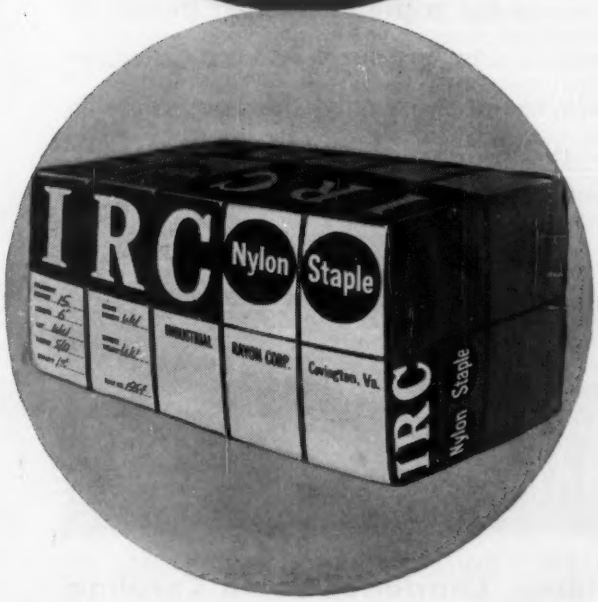


**To creative industrialists** in every manufacturing field, IRC presents a NEW Nylon Staple, developed to remove limitations on product design and improvement.

**Most important...** you can expect the same uniformity and performance from the NEW Nylon Staple by IRC that a long list of industries have experienced with IRC rayon yarns. For, as in the production of rayon, Industrial's new, modern nylon plant will operate on the conviction that IRC can always produce a better fiber for every trade.

# IRC

## Industrial Rayon Corporation

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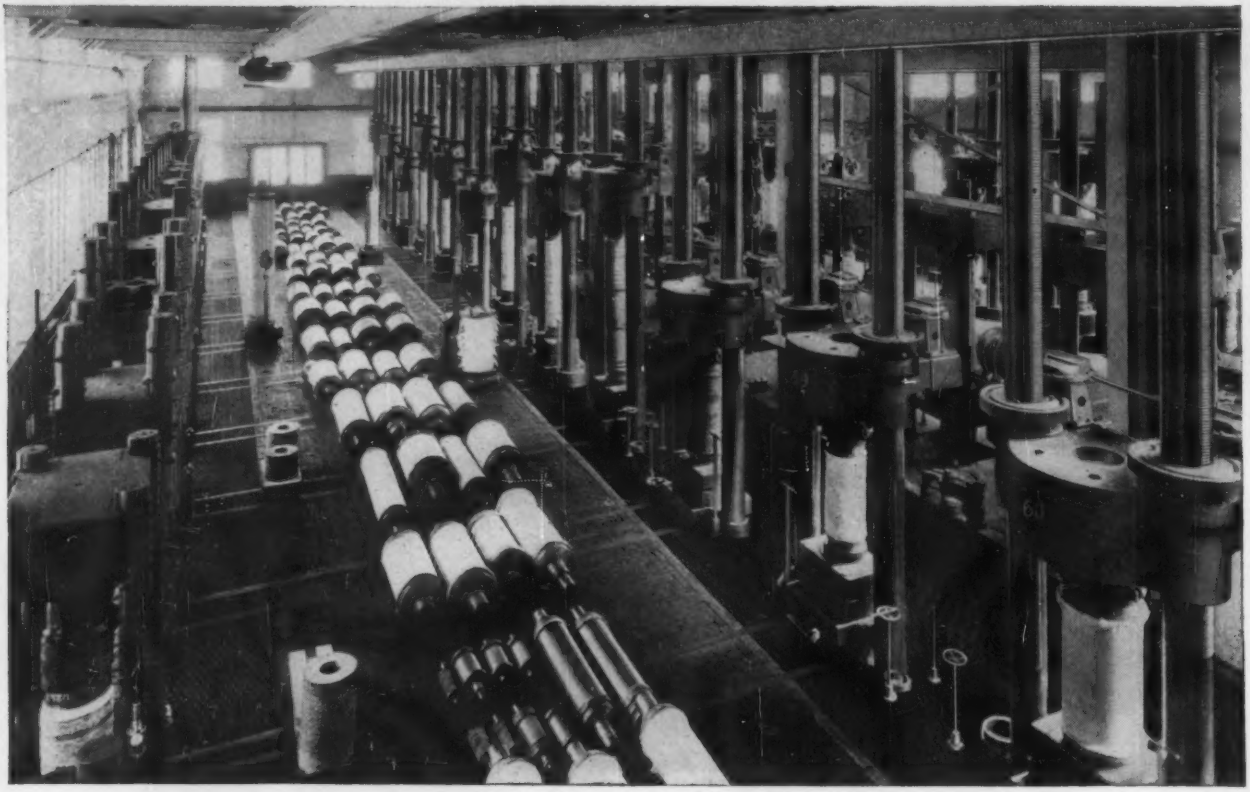

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**Stainless steel Humiducts never need painting;**
**Modulating humidistat gives new precision in control;**
**Oversize recirculated air screens drastically cut cleaning!**

Long-time newsmakers for efficiency and economy, Bahnson Humiducts now set new standards of performance, cut owning and operating costs to new lows. Three important features make this possible.

1 **New stainless steel ductwork,** at the same price as copper, is highly reflective — gives lighter, brighter rooms for peak production. Its lifetime non-corroding surface needs no painting, little maintenance . . . cuts interior and exterior cleaning time and frequency to a minimum.

2 **New modulating control** replaces on-off control. Extra-sensitive humidistats instantly respond to the slightest change in relative humidity — gradually open and close water valves to provide moisture in the exact amount required. Never too much — never too little.

3 **New oversize recirculated air screens** more than triple the effective screen area. One mill reports cleaning cut from twice per shift to two-day interval. Can be added to existing Humiducts at nominal cost!

These really significant new features, coupled with time-proved advantages of greater flexibility, lower operating cost, and elimination of expensive apparatus houses, make Humiducts a better-than-ever choice for efficiency and economy in textile air conditioning.

I will gladly send a comparative cost analysis showing the outstanding economy of Humiducts, together with factual information proving the superior conditions maintained by this system in many mills, if you will drop me a card or letter.

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President

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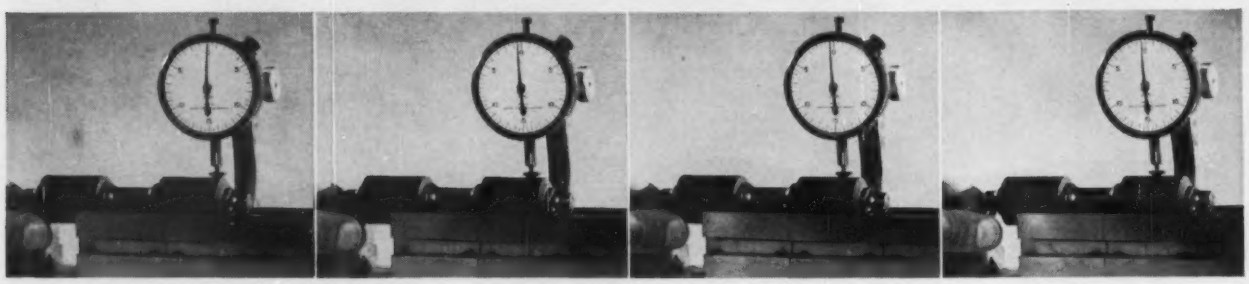
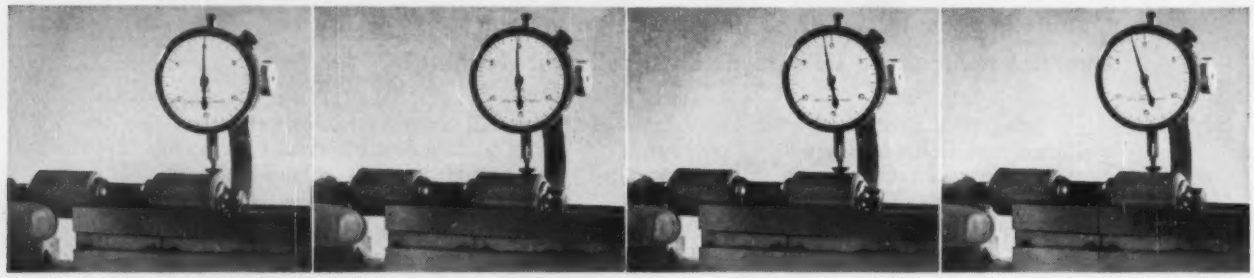
# DAYCO COTS Stay True,

**DAYCO EW-465 COTS**



**Start at left and compare each photo frame above with the one directly below. Note the remarkable lack of wear on the Dayco IBC Cot as against that of Brand "B" Cot as each is moved from left to right across the Dayco Roller Gauge.**

**Brand "B" COTS**



**Actual unretouched photographs of 9-month competitive test. Indicator shows wear in 1/1000 of an inch increments.**

Here is proof of the superiority of Dayco Cots! These *un-retouched* photographs—taken after 9-month competitive test — prove Dayco EW-465 Cots with IBC, non-eyebrowing ingredient, last longer, do not groove.

Dayco Cots (top) were tested side by side on the same frame with competitive cots, using the same yarn, under identical conditions. After 9 months of testing, Dayco EW-465 Cots stayed truer, never exceeding 1/1000" in wear as proved by the Dayco Roller Gauge Test. The gauge proved competitive cots (Brand "B") began to groove, needed re-buffing more quickly.

Brand "B" cots exceeded the serviceable standard at the end of the 9-month test while Dayco Cots had many service hours yet remaining.

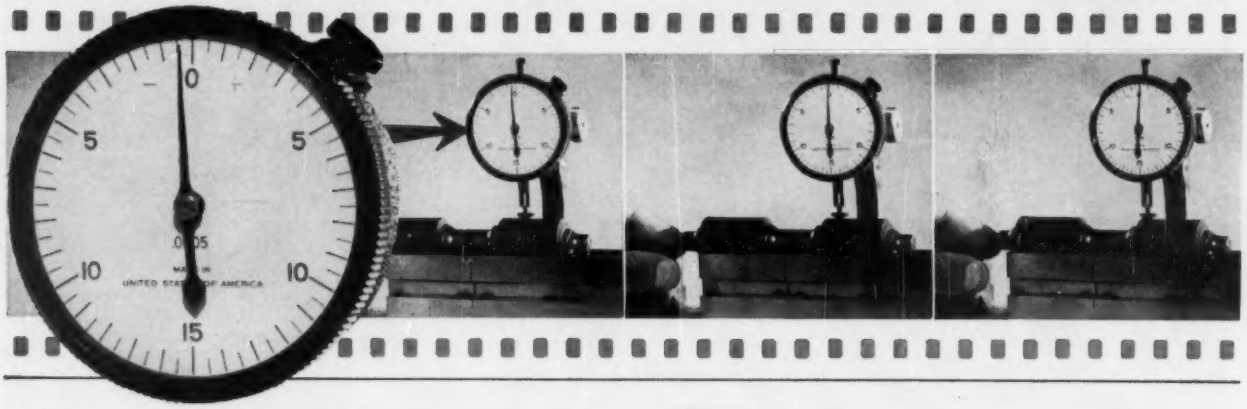
Dayco EW-465 Cots consistently outperform other cots because rigid control of the synthetic rubber compounds insure uniformly correct surface texture, cushion and friction. Only Dayco EW-465 Cots contain the amazing new ingredient, IBC, to combat and control eyebrowing. The chemical and mechanical action of IBC sets up the right coefficient of friction to eliminate the eyebrowing problem.

Because of Dayco Cots' extremely durable surface, perfect cushion, and exactly right coefficient of friction, they retain their superior physical properties throughout their long service life. In fact, Daycos' drafting ability *improves* with use!

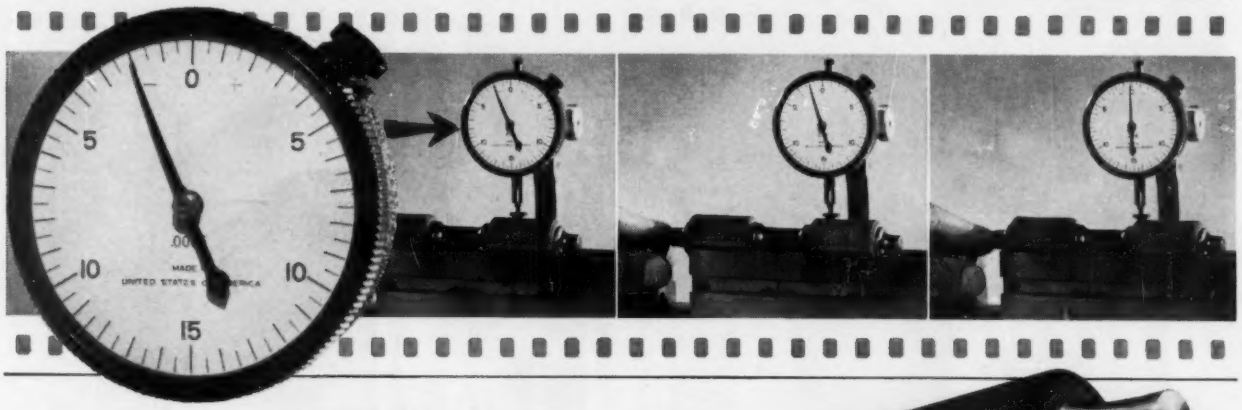
You benefit the instant you equip your frames with Dayco Cots. You can expect, and get, improved yarn quality, valuable savings in time, materials and labor and increased production at the lowest possible replacement cost. Try Dayco EW-465 Cots on your frames for personal proof of their performance. See your Dayco Representative for complete details.

Compare these Dayco features against any other cot...

# Do Not Groove by Actual Test!



(Magnified Photo of Roller Gauge Measurement in exact center of cot.)



**DAYCO COTS**

- Successfully combat eyebrowing
- Create fewer lap ups and ends down
- Require fewer buffings
- Don't groove, pit or develop flat spots
- Unaffected by moisture or temperature changes
- Need fewer clearer board cleanings
- Draft better quality yarn
- Lower overall cot costs

**Dayco Cots successfully combat eyebrowing**

Actual mill tests prove New Dayco Cots with IBC ingredient successfully combat eyebrowing, draft better yarn and run longer between buffings on all types of frames.

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**Dayton Rubber**

*Since 1905*

***Dayco and Thorobred Textile Products for Better Spinning and Weaving***

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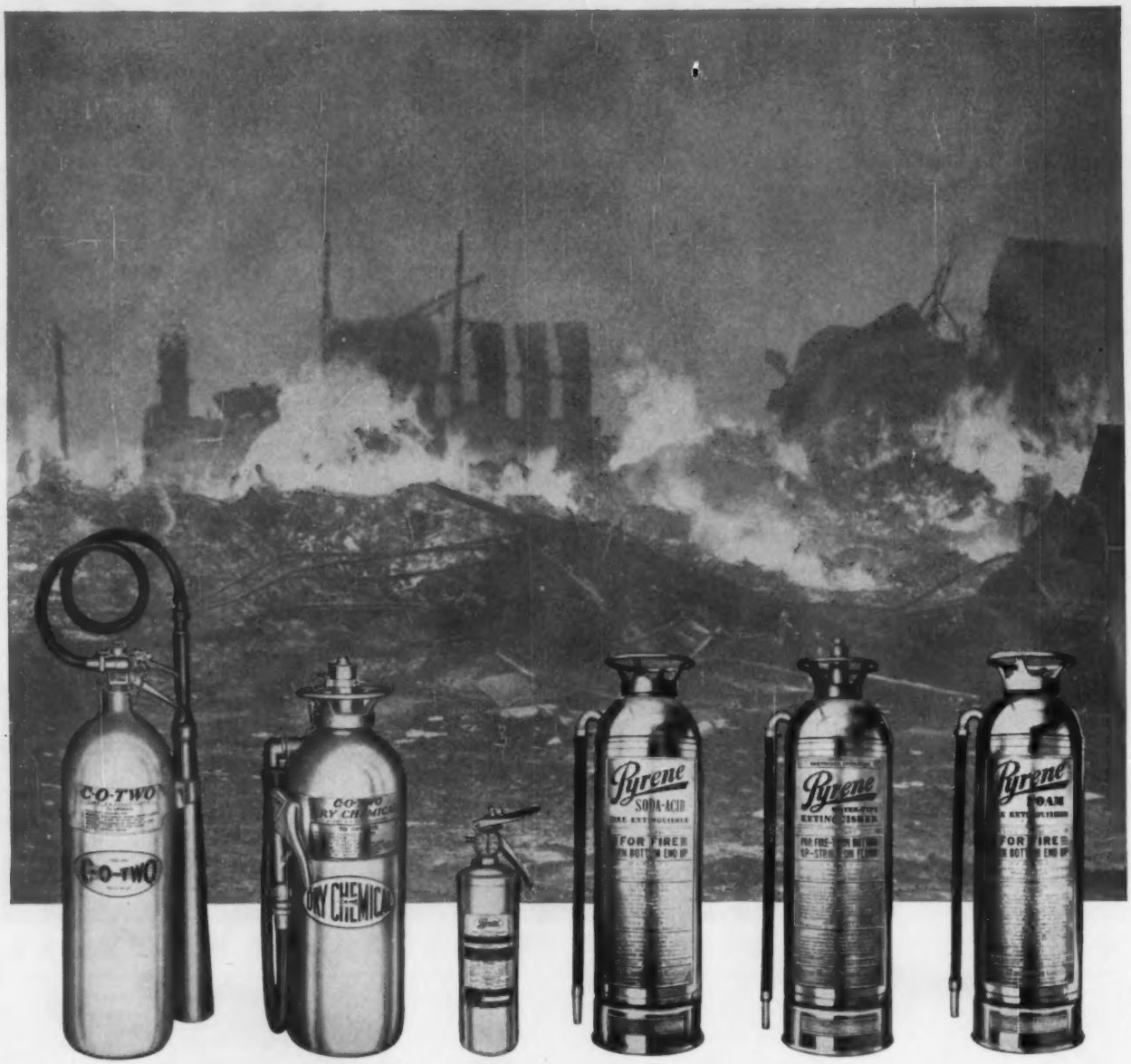
Miller

AIR CYLINDERS

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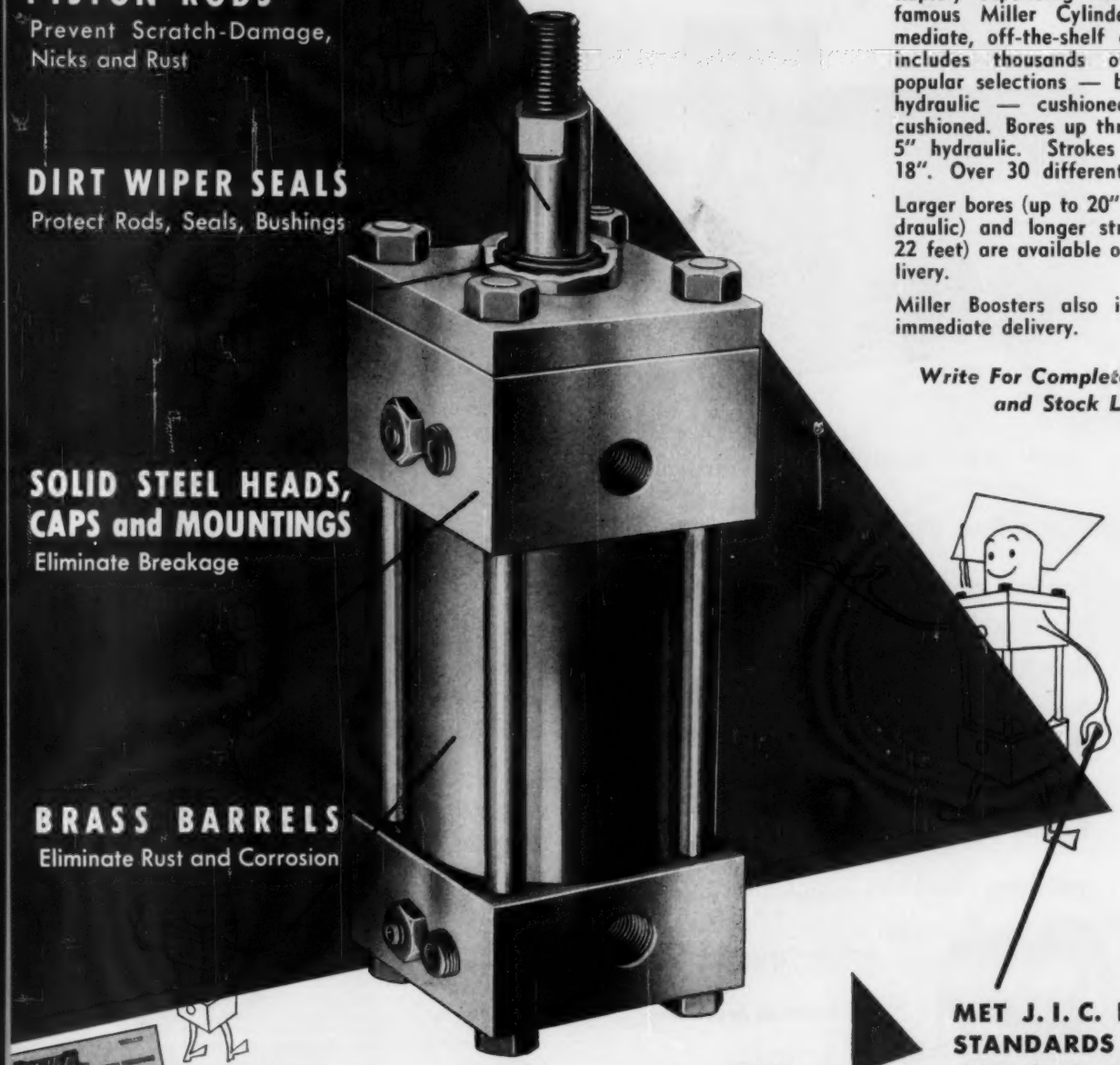
## In Thousands of Different Selections For Immediate Delivery!

**HARD CHROME PLATED PISTON RODS**
Prevent Scratch-Damage, Nicks and Rust

**DIRT WIPER SEALS**
Protect Rods, Seals, Bushings

**SOLID STEEL HEADS, CAPS and MOUNTINGS**
Eliminate Breakage

**BRASS BARRELS**
Eliminate Rust and Corrosion



Rapidly expanding list of quality-famous Miller Cylinders for immediate, off-the-shelf delivery now includes thousands of different, popular selections — both air and hydraulic — cushioned and non-cushioned. Bores up through 8" air, 5" hydraulic. Strokes up through 18". Over 30 different mountings.

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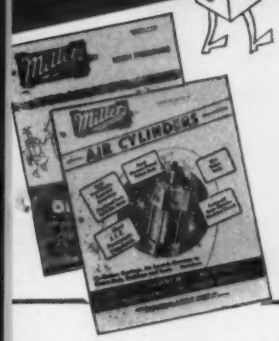
Miller Boosters also in stock for immediate delivery.

***Write For Complete Catalog and Stock List***

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Complete Miller cylinder line includes: air cylinders, 1½" to 20" bores, 200 PSI operation; low pressure hydraulic cylinders, 1½" to 6" bores for 500 PSI operation, 8" to 14" bores for 250 PSI; high pressure hydraulic cylinders, 1½" to 12" bores, 2000-3000 PSI operation. All mounting styles available.

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AIR & HYDRAULIC CYLINDERS • BOOSTERS • ACCUMULATORS

# You can do it better with Louden engineered monorail!

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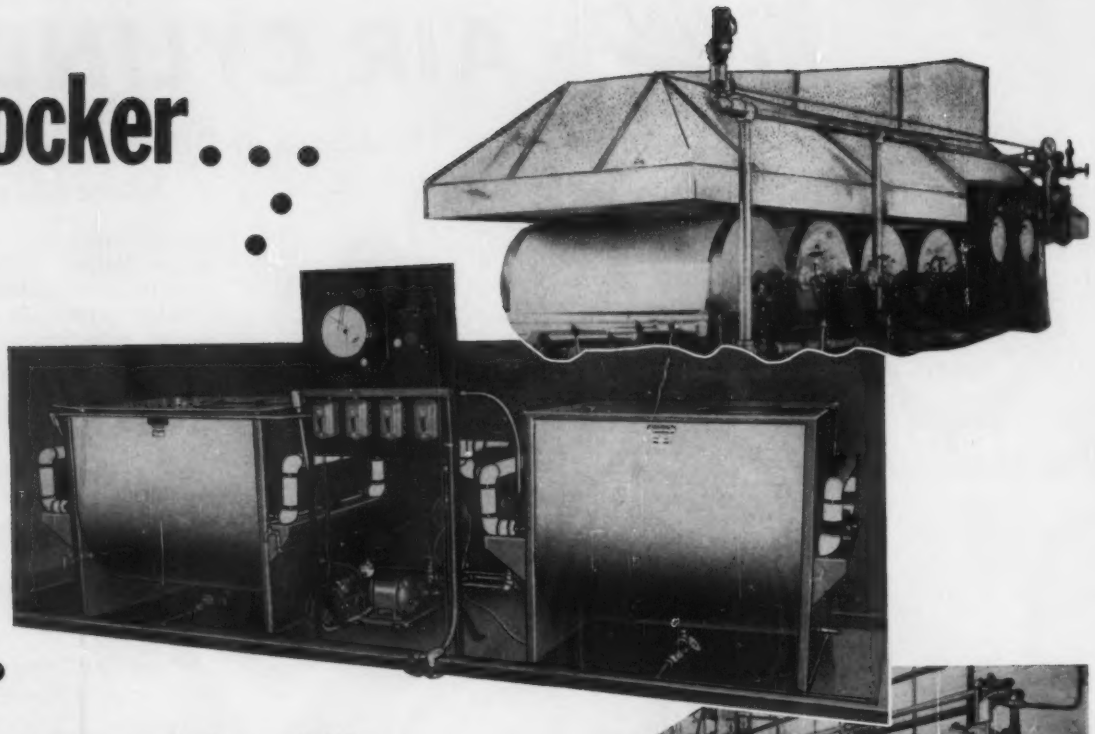

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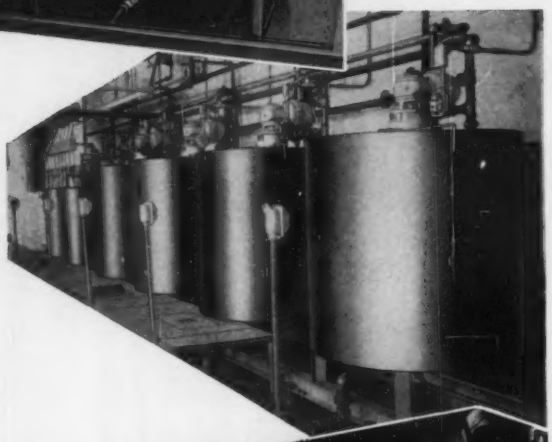

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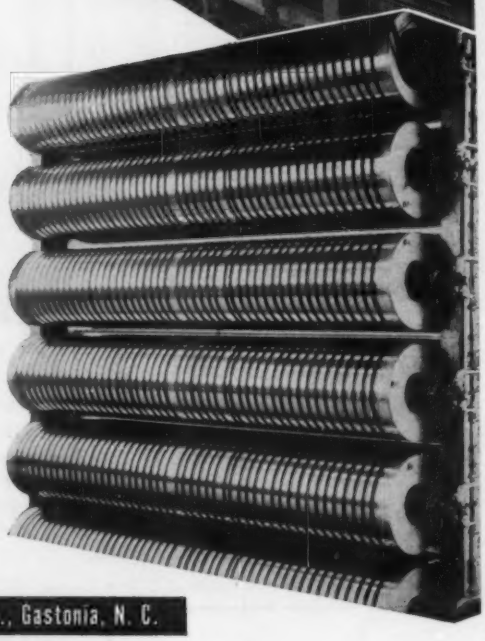

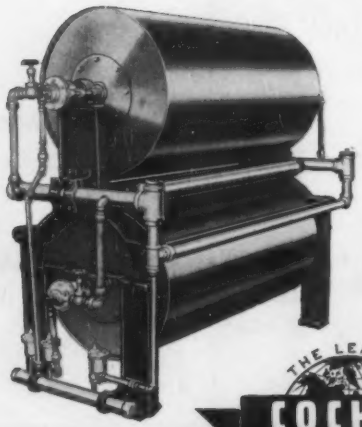

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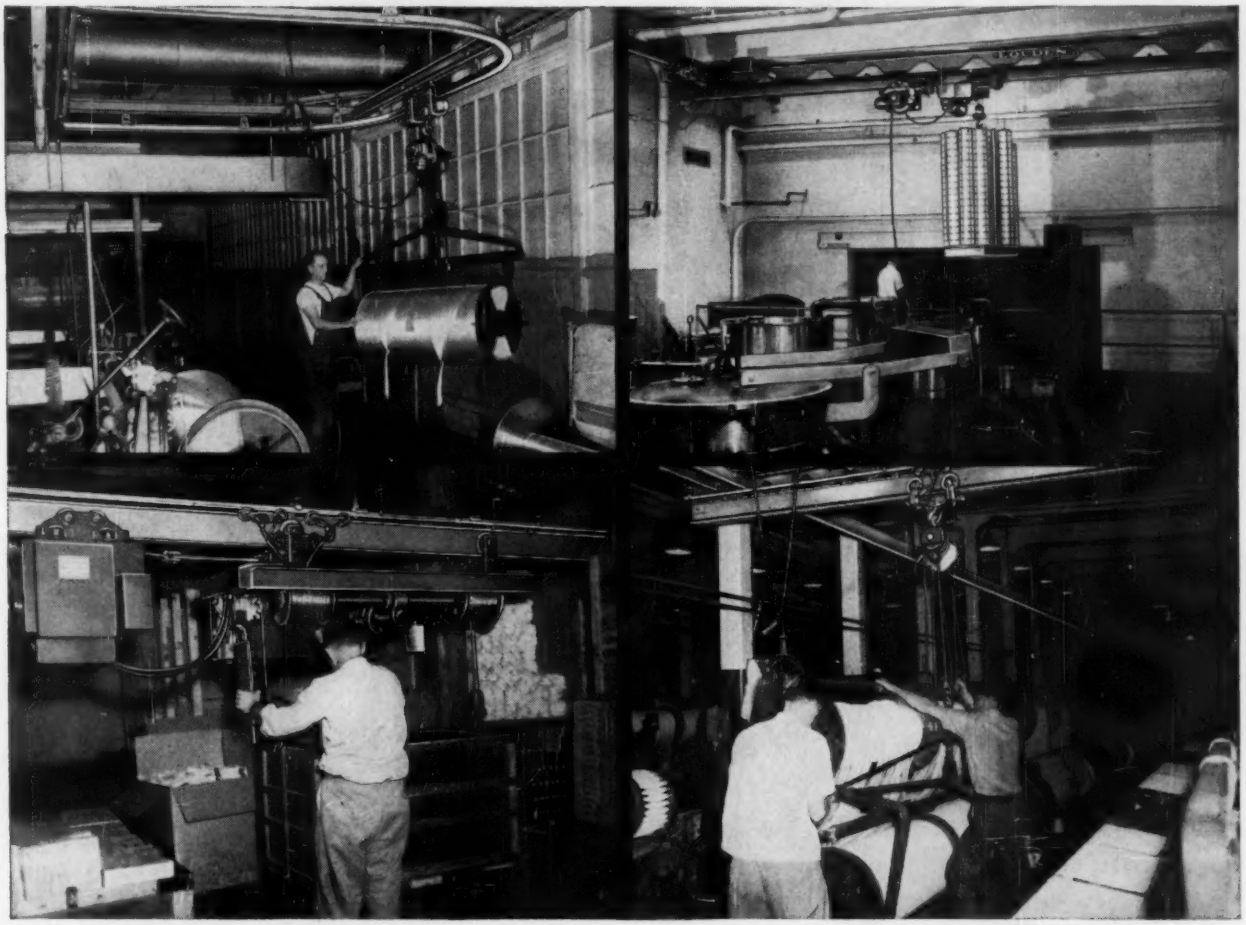
COCKER Machine and Foundry Co., Gastonia, N. C.

WORLD'S LARGEST DESIGNERS AND BUILDERS OF COMPLETE WARP PREPARATORY EQUIPMENT



## Report from the Carolinas:

# You can do it better with Louden engineered monorail!



## Let Louden's long experience solve your textile handling problems

Louden pioneered monorail handling. This longest and broadest experience with the most adaptable and most flexible of all materials handling methods naturally offers many *extra* benefits to men seeking answers to any handling problems. Shown above are Louden Monorail handling equipment in four of the nation's leading textile mills. On performance, Louden is the preferred choice of many of this country's most progressive operators. Benefit by Louden experience and success on YOUR next handling problem.

**THE LOUDEN MACHINERY COMPANY**
**5101 Court St., Fairfield, Iowa**
*A Subsidiary of Mechanical Handling Systems, Inc.*

**SEND FOR THIS BOOK—** Write for your copy of "Economical Material Handling" . . . full of time-saving, cost-cutting ideas and case histories. Free . . . no obligation.

Louden
MONORAIL CRANES

**Since 1867—the first name in materials handling**

**Report from the Carolinas:**

# Mills Are Making a Better Size with Pearl Starch

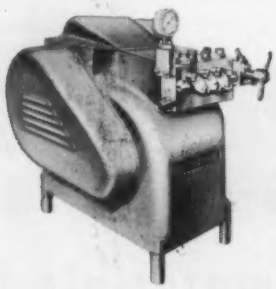
DOZENS of mill men tell us they make a better, more uniform size out of pearl starch simply by Gaulin-Homogenizing it. And with pearl starch costing $360.00 less than thin boiling starch per 60,000# car, the savings really mount up. But this is only the beginning.

By converting starch mechanically instead of thermally, a Gaulin Homogenizer makes even a pearl starch into a finer size . . . with a more stable and uniform viscosity.

It penetrates yarn lightly but evenly . . . bonds fibers together smoothly, firmly — without coating or matting and making them brittle. Out of 33 mills in North and South Carolina, 28 report more uniform sizing when it's Gaulin-Homogenized. 26 claim a decrease in hard size. 18 notice improved penetration in the yarn. Another 16 say the quality of their warp yarn is improved.

In addition, Gaulin-Homogenized Size lends itself to storing. Most mills say they can keep it up to 48 hours.

But how long does it take for a Gaulin to pay for itself? Most mills say from 6 to 18 months. If you're not already using one, why not give a Gaulin a test right in your own mill? We'll be glad to install one on a guaranteed performance basis. Whether you're making cotton, worsted or synthetics, just drop us a line asking for one of our sales engineers to call.



**Manton-Gaulin**

MANUFACTURING COMPANY, INC.
72 GARDEN ST., EVERETT 49, MASS.
*World's Largest Manufacturer of Homogenizers*
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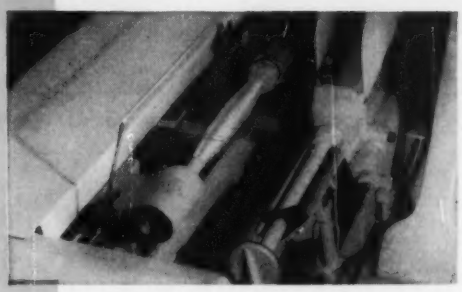
## Automatic Filling Winder

(MADE IN WESTFIELD, MASS., U.S.A.)

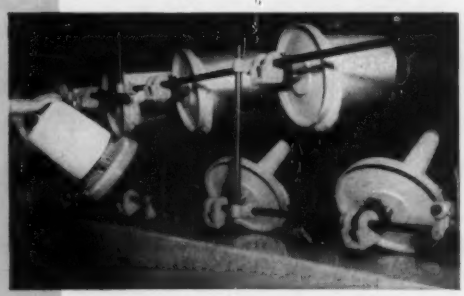
### All 8 Points of Superiority You Want

- **SUPERIOR WINDING.** Produces practically perfect bobbins because of close delivery thread guide, shock-proof start, simple and effective layer locking device and feelerless guide.
- **SIMPLICITY OF DESIGN.** Spindle box has only 2 sets of gears. Traverse cam, outside of spindle box, requires no lubrication. Spindles independently controlled, so different size yarns can be run on each spindle and so other spindles will continue to produce if one is stopped.
- **LOW MAINTENANCE.** Spindles are not geared, have no clutch, run in ball bearings and are driven in groups of 8 by motor with overload capacity. Low cam speed (in spite of 15,000 r.p.m. spindle speed) promotes long life.
- **LOWEST OPERATING COST.** As low as ¼c per lb. of yarn quilled, when magazine creel carries 4 lb. cones and machine is equipped with central bobbin-hopper and automatic pin-boarding, or filling box stacker.
- **LOW INVESTMENT.** About $100.00 per loom serviced, when machine is equipped for fully automatic operation.
- **FLEXIBILITY.** Different counts or colors can be run on same machine at same time. Will wind all counts and types of yarn.
- **FULLY AUTOMATIC OPERATION.** When machine is equipped with all automatic attachments, only duties of operator are to creel in supply and pick up broken ends.
- **EXPERIENCED AND RELIABLE MANUFACTURER.** The Model 66 is made entirely by us in Westfield, Mass. We are proud of our 64 years of experience in designing and building winders and our reputation for reliability and integrity.

FOSTER-MUSCHAMP MODEL 66 BOBBINS



EMPTY BOBBIN READY TO MOVE INTO WINDING POSITION AND FEELERLESS BUILD



MAGAZINE CREEL

**Buy FOSTER MUSCHAMP Automatic Filling Winders and get ALL of the 8 points of superiority you want.**

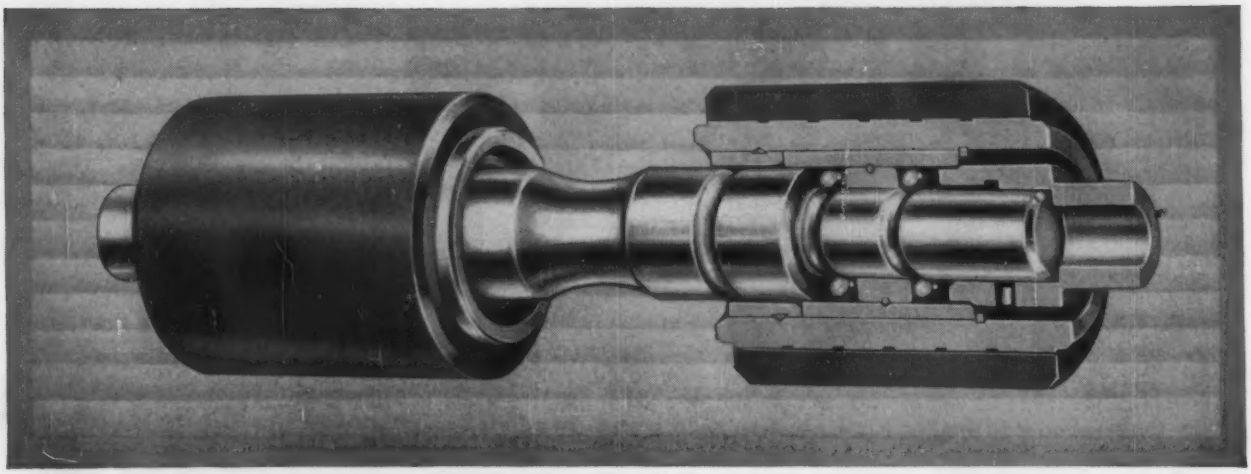
## FOSTER MACHINE COMPANY

*A Winder for Every Textile Purpose*

WESTFIELD, MASSACHUSETTS, U.S.A.

SOUTHERN OFFICE, JOHNSTON BLDG., CHARLOTTE, N. C.

# from SKF a LOW COST ball bearing top roll 5 WAYS BETTER



Over five *million* SKF Ball Bearing Top Rolls in service are proving that they're 5 ways better—and any SKF District Office will show you that they're priced *right!*

## Here are the 5 important advantages of SKF Ball Bearing Top Rolls

1 SKF's thick-walled, interchangeable, machined shells are easily removable for periodic cleaning. Can do accurate cot grinding. Experience no distortion.

2 SKF Rolls need re-greasing only at 20,000-hour intervals . . . equivalent to 3 years of three-shift, six-day week operation.

3 Ball Bearings provide concentric, non-wobbling rolling, which means a more uniform yarn.

4 SKF Top Rolls are available with open or closed ends, for all spinning and roving.

5 More SKF Rolls are in service throughout the world than any other make of anti-friction rolls, and have been successful for over 16 years.

In addition, of course, you obtain these well-established cost and quality advantages inherent in ball bearing top rolls—elimination of spoilage from oil leakage, minimized picking and cleaning, elimination of wear on the saddle, cap-bars, nebs and roll necks, reduced power consumption, and, altogether, ***cleaner, stronger, more uniform yarns.***

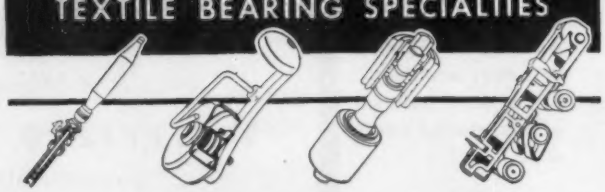
Ask any SKF District Office to have a qualified Sales Engineer show you how to get the 5 important advantages of SKF Ball Bearing Top Rolls. Or, if you prefer, send for SKF Bulletin No. 1052.

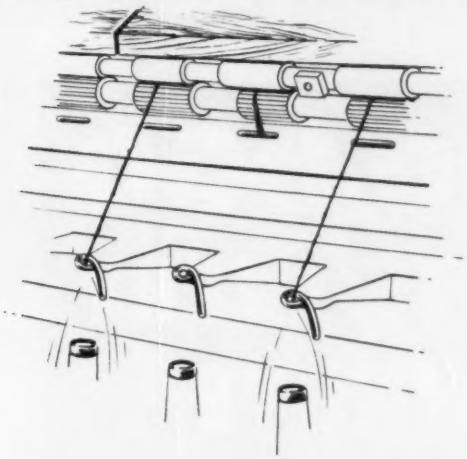
**SKF INDUSTRIES, INC.,** PHILADELPHIA 32, PA.— *manufacturers of* **SKF** *and* HESS-BRIGHT® *bearings.*

7540

SKF®

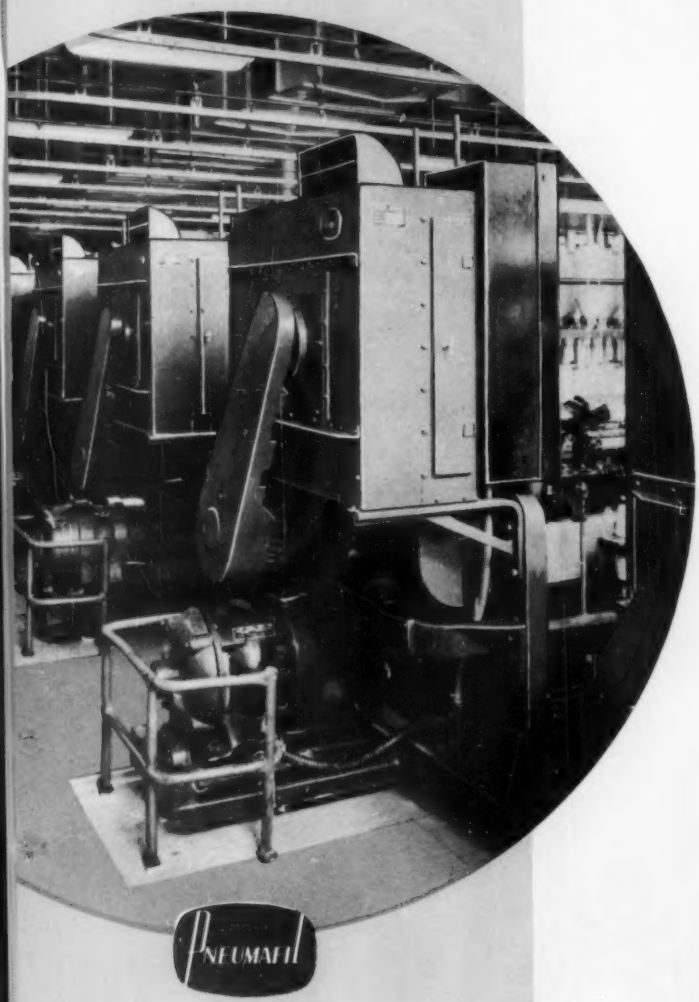
TEXTILE BEARING SPECIALTIES





# PNEUMAFIL*

## lowers manufacturing cost 4 ways




- **Reduces labor cost . . .** spinner assignments are increased more than 30% because the job is better organized and there is a decrease in non-productive walking and patrolling.
- **Reduces ends down . . .** ends broken by other ends are eliminated . . . there is less fly; therefore, fewer slubs to break ends at the traveler. 30% reduction is not unusual.
- **Reduces waste . . .** collected waste is "air-opened" and loose . . . "waste machine" processing is not needed . . . Pneumafil* collected fiber is "premium grade" and is re-run by mills in their regular mix.
- **Reduces cleaning costs . . .** Pneumafil* collects 50% of the fibers from the air and drafting area . . . Pneumafil* equipped frames are cleaner frames . . . Pneumafil* equipped mills are cleaner mills.

These four cost cutting features plus the assurance of better quality yarn make . . .

***PNEUMAFIL* the best investment you can make!***

**PNEUMAFIL CORPORATION**

CHARLOTTE 8, NORTH CAROLINA

*Sales Offices:* Needham Heights, Massachusetts—Atlanta

*Reg. U.S. Pat. Off.

# 600,000 KNOTS EVERY MINUTE with USTER

***OVER 2,000 USTER WARP TYING MACHINES ARE TYING 600,000 KNOTS... EVERY MINUTE...EVERY WORK DAY... IN THIRTY-SEVEN COUNTRIES!***

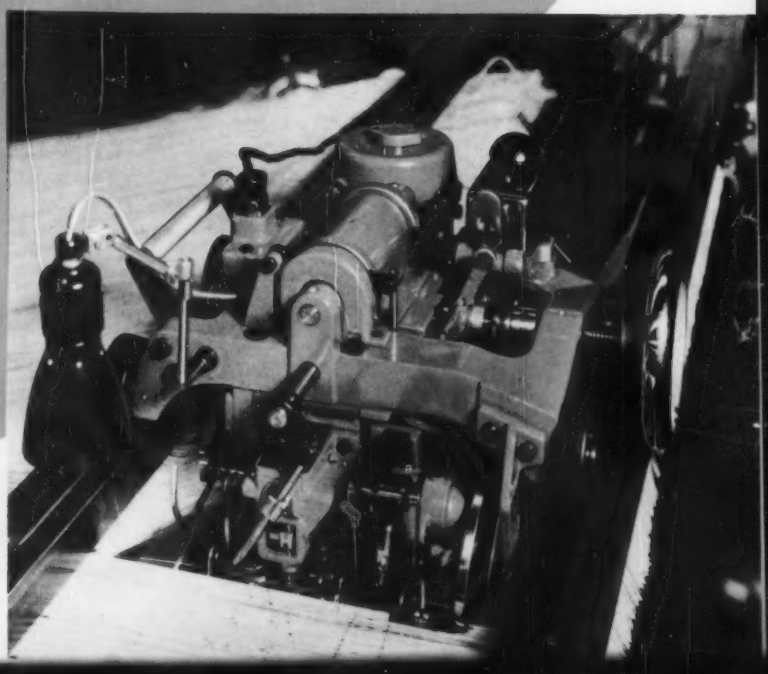
Efficiently tying cotton, wool, silk, worsted, synthetics, blends, flax, plastic, jute, and even human hair... in counts ranging from the heaviest cotton duck to the finest denier nylon filament.

Only with Uster do you get... a tried and proven machine... years of experience with the "Uster system"... better know-how... good delivery... excellent operator training... and dependable service by factory trained technicians ...that is why...

***THE TREND IS TO USTER***

**USTER CORPORATION**
CHARLOTTE 8, NORTH CAROLINA

*Sales Offices:* Needham Hts., Mass.—Greenville, S. C.
*In Canada:* Hugh Williams & Co., 47 Colborne Street, Toronto, Ontario

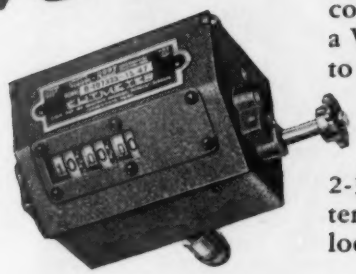


*Reg. U.S. Pat. Off.

# In Spinning...

New Veeder-Root 2-3-4 Convertible Hank Counters are easier to read, reset and maintain. And they are built to give you years of accurate facts-in-figures that help toward closer production *Count*rol.

# Weaving...



Here's the combination to count on . . . *on every loom* . . . a Veeder-Root Cut Meter (left) to light a light or stop the loom at a pre-set woven yardage, *assuring uniform cuts of cloth* . . . and a new Veeder-Root 2-3-4 Convertible Pick Counter to keep accurate count of loom production on each shift.

# Knitting...

For any type of knitting machine, Veeder-Root makes the counters you need to control your production. These new Revolution Counters, with the same advantages as the new 2-3-4 Convertible Hank and Pick Counters, can also be geared to record racks, or racks and tenths. In Fact, In Any Department of Any Type of Textile Mill . . .

# VEEDER-ROOT

## IS "THE NAME THAT COUNTS"

**HARTFORD 2, CONN.**
Tel. Jackson 7-7201

**GREENVILLE, S. C.**
Box 297, Tel. Greenville 3-1371

# LOGEMANN BROTHERS CO.

(Established over 80 Years)

3150 W. Burleigh St., Milwaukee, Wis.

## LOGEMANN BALING PRESSES

**All Sizes and Types for All Purposes**

### YARN BALERS

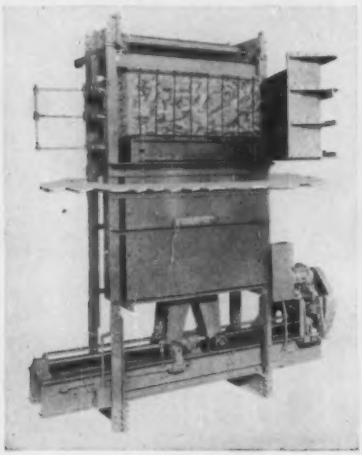
SPECIAL FEATURES: (1) Easy to load: Individual doors facilitate piling of skeins; after lower doors are closed, top door in front permits complete filling of box. (2) Greater pressure: The toggle-type baler develops more power than other mechanical presses, therefore produces higher bale density. (3) Speed: Press completes its stroke in less than 35 seconds, without complex gear shifts, belt shifts or motor switching. (4) Convenient to burlap: Doors open all around; burlap can be completely sewed on the bale while under compression.

BALE SIZE: For yarn baling, Model 26-MS, making bales 36" x 24" x 24", is generally accepted as standard, but variations in bale dimensions are obtainable where such appear desirable.

### POWER BOX BALERS

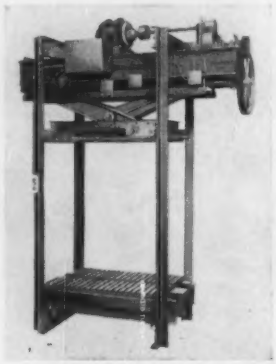
SIZES — TYPES: Built in many box dimensions, one-floor or through floor type, upstroke or downstroke. Can be built with movable boxes, rolling on tracks, utilizing several boxes with one master press.

SPEEDY & POWERFUL: Without special mechanisms or shifting device, and at uniform motor speed, compression platen moves at high speed through the first part of its stroke, gradually slowing down as extreme pressure is applied. On return stroke, action is reversed. High bale production easily obtainable. Utilizing leverage in place of direct pull, toggle presses make tighter bales, with less horsepower, than any other mechanical baler. Upkeep and maintenance are far lower, due to the few moving parts.



**Textile plants having special baling-problems are invited to outline their conditions and requirements in detail, so that experienced LOGEMANN baler engineers may make recommendations and offer the proper type of equipment. Inquiries should specify the character of material to be baled, preferred size or weight of bale, and quantity to be baled in a given period of hours.**

### OPEN BALERS



RIGID CONSTRUCTION: Heavy angle-iron side frames and I-beam stress members insure far greater rigidity than the rod-type corner posts. Drive frame has no swinging members, eliminating complicated belt or electrical connections. Designed with liberal factor of safety —much higher pressure ratings would be permissible.

TOGGLE OR HYDRAULIC: Both types built in wide range of platen dimensions and clearances to suit requirements. Toggle-lever type either belt or motor drive. Hydraulic units complete, including pumps, to give any speed and pressure desired.

PORTABLE TRUCKS: Either type can be built with tracks for portable trucks on which material can be stacked, drawn into press for baling, and finished bale transported to storage or shipping platform.

### HYDRAULIC BALERS

Outstanding advantages are simplicity, extremely low maintenance cost, freedom from usual operating troubles, and controlled pressure.

SPECIAL FEATURES: Skilled help or special training not needed to operate these presses with complete safety. No other type produces equal bale density. Yet maintenance is far less. Ram, platens and doors only moving parts. Pressures can be accurately controlled. Doors release and expose three sides of bale for convenient wiring and burlapping.

ALL SIZES: Bale dimensions and weights to meet varying requirements for different materials can be obtained. Either up or down stroke to suit. With pump of proper size and deep press box, extremely high bale outputs are readily attained.

# Performance Rated©

# Century TEXTILE MOTORS SHRUG OFF LINT

This team of Century 1½ H.P. Textile Motors delivers reliable performance driving cotton cards.

## Job-Dependability Proved in Plants Like This

- Because of their ability to *"Shrug Off Lint"* and maintain normal operating temperatures, Century Textile Motors extend insulation life . . . deliver more dependable operating hours in your plant.
- Wide open, smooth-surfaced ventilating passages—together with strong air blast from integral cast aluminum rotor fans—keep vital motor parts free from lint.
- Specify Century Motors for new equipment and for replacement. Full information is readily available at your nearby Century District Sales Office or Distributor.
- Ask for Textile Motor Bulletin 14-193 Page 1. Other bulletins available on AC or DC Motors . . . ⅛ to 400 H.P.—Drip Proof, Splash Proof, Dust Proof, Explosion Proof.

CE 841

*Century Selective Speed Drives...*
*1 to 150 H.P. Ask for Bulletin 11-1 Page 1.*

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Century C MOTORS

# LUNKEN

THE ONE *Great*



# Stops Oil Damage!

# LUNCOR

## Valves and Fittings

### *The Lunkenheimer PVC Valve resistant to industrial chemicals!*

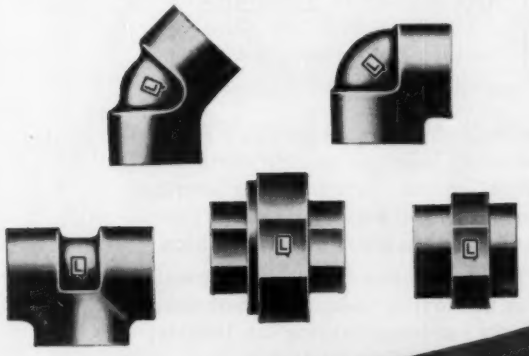
**You can cut your corrosive fluid handling costs with the first all-plastic valve designed and engineered by a valve manufacturer!**

**The new LUNCOR Valve, by Lunkenheimer, is made of rigid, unplasticized PVC. Every part is completely molded — body, bonnet, stem, and handwheel. The molding process not only gives it amazing strength, but protects its resistance to corrosion. You get time-tested Lunkenheimer quality — at surprising savings. If you have been using stainless steel or alloy valves for corrosive service, it will pay you to investigate the new LUNCOR Valve and Fittings . . . *now.***

**Basic material used for the LUNCOR Valve is polyvinyl chloride (PVC), which resists most industrial chemicals. It is recommended for service at pressures up to 125 psi and temperatures up to 140°F.**

**A complete line of LUNCOR PVC Fittings is also available from Lunkenheimer — 45° and 90° elbows, tees, flanges, unions, reducing bushings, caps, couplings, and plugs.**

**For full details, call your local Lunkenheimer Distributor, or write The Lunkenheimer Company, Box 360, Cincinnati 14, Ohio.**

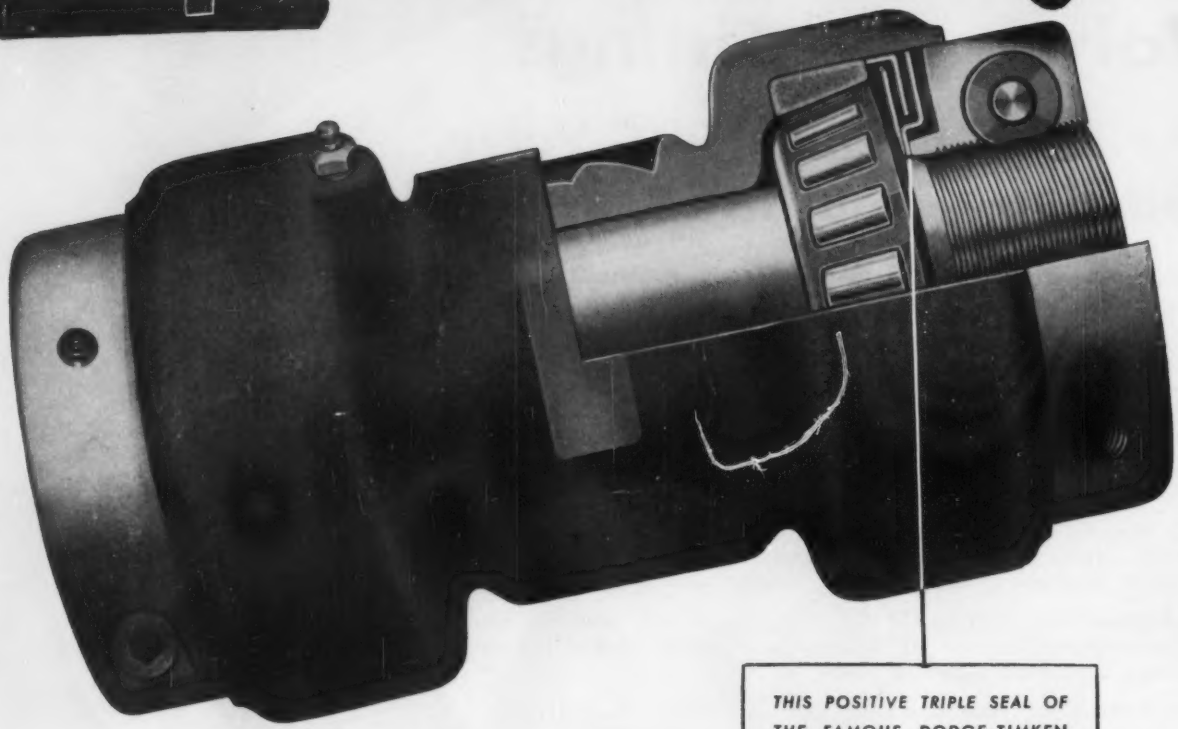


# HEIMER®

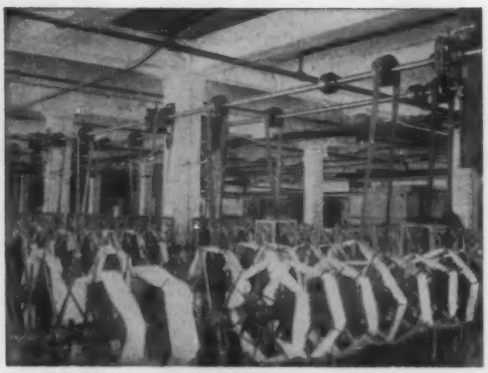
NAME IN VALVES

L-155-9

# Stops Oil Damage!



THIS POSITIVE TRIPLE SEAL OF THE FAMOUS DODGE-TIMKEN TYPE C BEARING ELIMINATES OIL DRIP... HERE IS THE IDEAL BEARING FOR TEXTILE MILL USE!



This installation of Dodge-Timken Hanger Bearings protects quality and profits. Special seals prevent oil leakage on the product, reduce "seconds." Bearings remain properly lubricated, saving labor.

IS OIL DRIP eating holes in your profits? To keep the lubricant where it belongs—*inside the bearing*—switch to Dodge-Timken. These famous bearings, noted throughout the world for quality, have proved themselves in millions of industry's toughest jobs.

The type C Dodge-Timken Bearing is especially adapted to use in the textile field. Its indestructible steel seal positively prevents lubrication leakage—definitely cuts a mill's loss from "seconds."

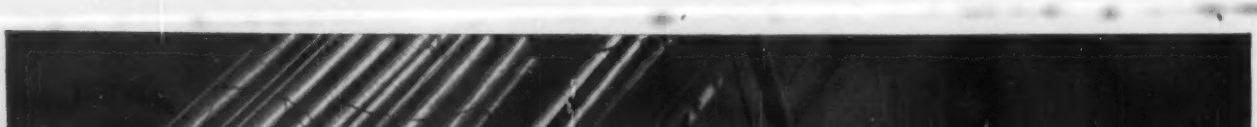
Available from distributors' stocks—in shaft sizes from 1-7/16" to 3-15/16". Completely assembled, factory adjusted, pre-lubricated and ready to install on the shaft for a minimum of 30,000 hours of uninterrupted service. Call your nearest Dodge Transmissioneer. Or write us for detailed bulletin.

**DODGE MANUFACTURING CORPORATION**
**1400 Union Street • Mishawaka, Indiana**

*CALL A DODGE TRANSMISSIONEER.* He's factory-trained to help solve your power drive problems. Look for his name under "Power Transmission Equipment" in your classified telephone directory.

**DODGE**
of Mishawaka, Ind.

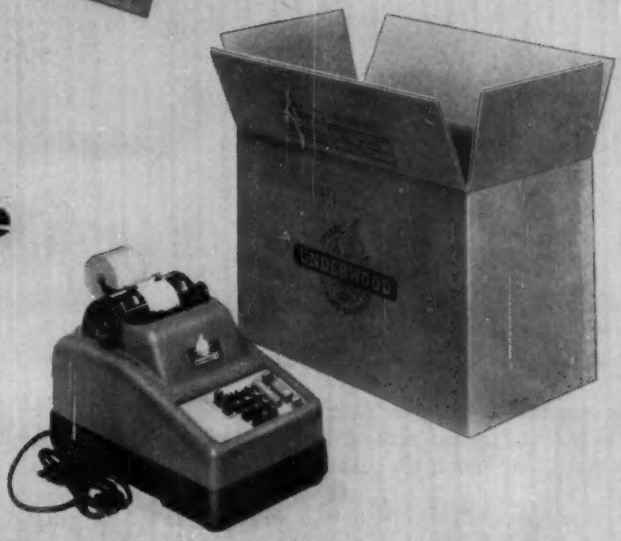




**merchandise**
at point-of-sale

**economize**
on shipping costs

**advertise**
in transit



Write for free booklet—"How To Ship Heavy Products."
Hinde & Dauch, Sandusky, Ohio

# HINDE & DAUCH

AUTHORITY ON PACKAGING

12 FACTORIES • 40 SALES OFFICES

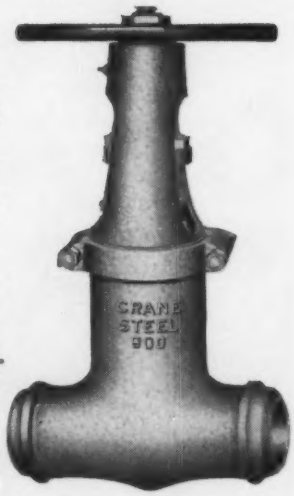
# Hold it!—is it good enough for CRANE VALVES?

What you see here is routine procedure on raw materials coming to Crane. There's no unloading of the more than 3,000 incoming carloads per year until the Crane Quality Control Lab gives an unqualified O.K.

The extra care that Crane gives to raw materials, and similarly to every step in manufacturing, pays off in better valves for you. You can be sure that Crane stands for quality that results in lower cost in the long run.

That's another reason why thrifty buyers prefer Crane valves. They know they're investing in better piping performance as well as protecting against untimely and excessive maintenance. A mighty important consideration in these days of high costs. And, surely, the main reason why industry keeps using more Crane valves than any other make.

**Better Quality**
**Bigger Selection**
**in Valves**
**for Every Need**




# CRANE CO.

*General Offices:* 836 S. Michigan Ave., Chicago 5, Illinois
*Branches and Wholesalers Serving All Industrial Areas*

**VALVES • FITTINGS • PIPE • PLUMBING • HEATING**

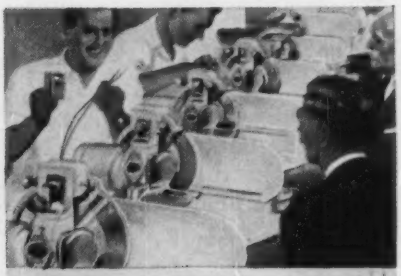
**CRANE'S FIRST CENTURY . . . 1855-1955**



# HOW TO BUY V-BELTS

# New Cutler-Hammer 9101 Switch joins a distinguished family of Small Motor Control Champions

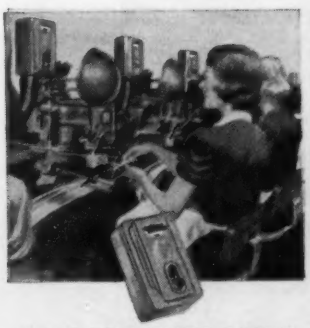
**ELECTRICAL INSTALLERS** of the many devices for home, store or factory using motors up to 1 HP praise easy wiring of the new Cutler-Hammer 9101.



**MACHINERY BUILDERS** have been quick to adopt the new Cutler-Hammer 9101 for standard original equipment . . . better protection plus speedier installation.

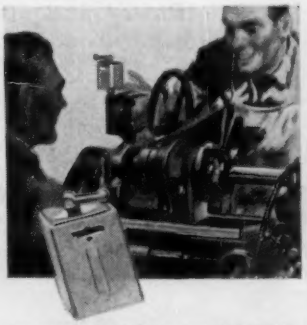
**AUTHORIZED DISTRIBUTORS** everywhere proudly feature the new Cutler-Hammer 9101 Motor Switch . . . offer two-pole and single-pole models from stock.

# CUTLER-HAMMER MOTOR CONTROL



**CUTLER-HAMMER 9115 MANUAL STARTER**—For dependable across-the-line starting and eutectic overload protection of single phase and polyphase motors up to 2 HP.

**CUTLER-HAMMER 9586 AUTOMATIC STARTER**—C-H 9586 Size 0 Automatic Starter permits economical and safe remote pushbutton control of motors up to 2 HP.



**CUTLER-HAMMER 9441 DRUM SWITCH**—Choice of the men who want the best in a switch for reversing or special control of machines in the home workshop.

**CUTLER-HAMMER 10017 PRESSURE SWITCH**—Both manufacturers and installers of pumps and water supply units say this widely used pressure control switch is the finest.

Copyright 1954, Cutler-Hammer, Inc., Milwaukee 1, Wis



you too can discover
THE WAY UP IS OILGEAR

# HOW TO BUY V-BELTS

## FOR MORE POWER AND LONGER LIFE

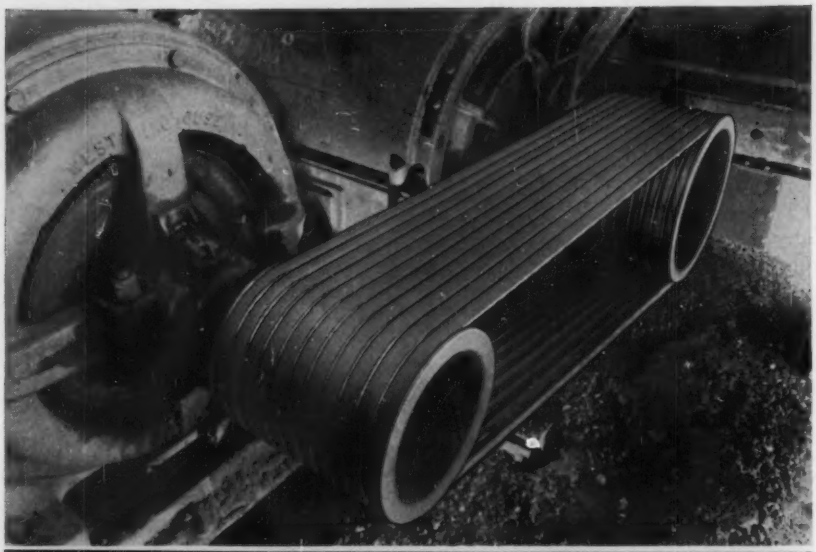
### ...and get "More Use per Dollar"

Look for a belt with straight sidewalls and accurately positioned strength members that prevent sag in the "power line".

The "power line" or pulling section is the heart of a V-belt. It is here the belt strength members are located and it sets the load-carrying capacity of the drive.

Straight sidewall construction assures firm pressure in the lower or compression section of the V-belt so that when it rounds the pulley it supports the strength member in a straight line. All cords of the strength member should pull equally. If they "sag", as in some constructions, the outer cords are overworked and premature failure results. In addition, straight sidewalls exert a firm side-grip on the sheave grooves, eliminate slip and power waste.

Specify, by name, the V-belt most carefully manufactured so that every part is balanced to deliver full horsepower capacity and "More Use per Dollar" . . . specify R/M Super-Power or standard Condor V-Belts.



## R/M SUPER-POWER AND CONDOR V-BELTS

For longer life under shock loads, R/M Super-Power V-Belts have a new synthetic super strength member which delivers up to 40% more horsepower capacity; fewer belts can be used on the same drive for the same horsepower. They are oil-proof, non-spark and heat resistant. Both R/M Super-Power and standard Condor V-Belts have straight sidewalls with strength members micro-positioned and destretched during manufacture. This prevents power waste and frequent shutdown for belt take-up. Let an R/M representative show you why R/M Super-Power or Condor V-Belts last longer . . . give you "More Use per Dollar".

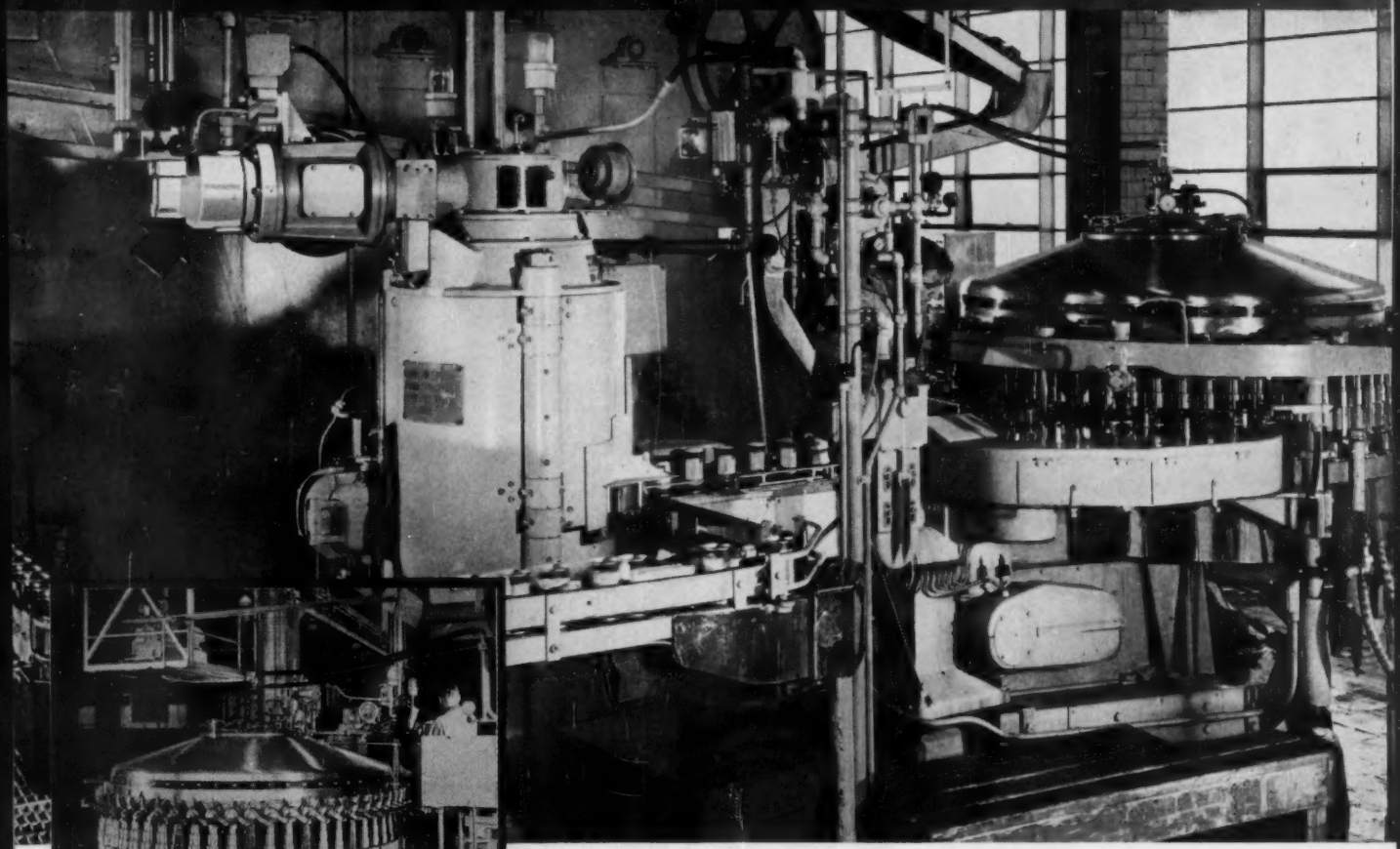
MANHATTAN RUBBER DIVISION—PASSAIC, NEW JERSEY

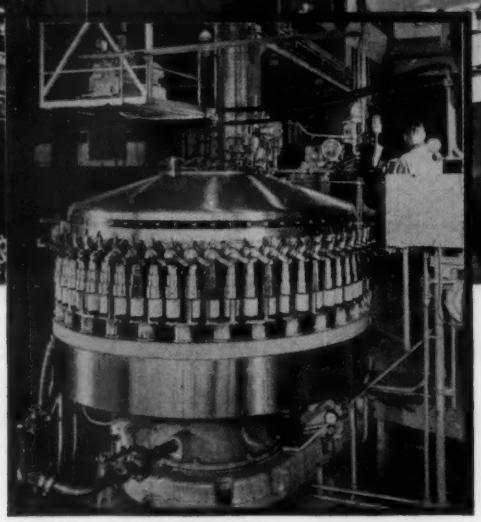
**RAYBESTOS-MANHATTAN, INC.**

Other R/M products include: Industrial Rubber • Fan Belts • Radiator Hose • Brake Linings • Brake Blocks • Clutch Facings Asbestos Textiles • Packings • Engineered Plastic, and Sintered Metal Products • Bowling Balls

You too can discover

# THE WAY UP IS OILGEAR





Beer Can Filling and Closing Machines equipped with Oilgear "ANY-SPEED" Drives are operating in many breweries. With Oilgear, beer can filling and closing production climbed from 360 to 600 cans a minute.

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Fluid Power

**PIONEERS...NOW THREE PLANTS FOR FLUID POWER**

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## "ANY-SPEED" DRIVES BOOST FILLING-CLOSING RATE TO 600 BEER CANS PER MINUTE. SIMPLIFY MACHINE DESIGN TOO.

There is a necessity upon every machine designer to improve the performance of his machines—if he can. When the designers of beer-can filling and closing machines raised the rate from 150 to 360 cans per minute, the drive limit seemed to be reached. Yet, their users wanted more production *without spillage* or can conveyor problems.

Then these engineers tried Oilgear "ANY-SPEED" Drives . . . the Fluid Power and Control that gave them what they wanted and—even more.

These engineers stipulated: • accelerate machines to half speed in 2 seconds • accelerate machines to full speed in 5 seconds • decelerate and stop machines in 4/10 seconds • a filling-closing rate of 425 cans per minute.

The Oilgear drive accelerated and decelerated so smoothly, it actually provided: • acceleration to full speed in 2 seconds • deceleration and stop in 2/10 seconds • a filling-closing rate of 600 cans per minute.

That's not all. Oilgear's cushioned application of power plus inherent positive protection against high overload starting torques and lower overload running torques eliminated the need of mechanical slip clutches. Thus, the machine design is simplified and maintenance is negligible.

This smooth yet swift acceleration and deceleration that allows brewers to handle full cans without spilling is one of two tremendously important Oilgear advantages. Utterly variable, flexible and controllable speed is the other. These and other superiorities are writing new history in machine design. *You ought to know the details of that history.* Why don't you contact a nearby Oilgear engineer, or write to Milwaukee. No cost, but the profits may be great.

**THE OILGEAR COMPANY**
**1577 W. Pierce Street**
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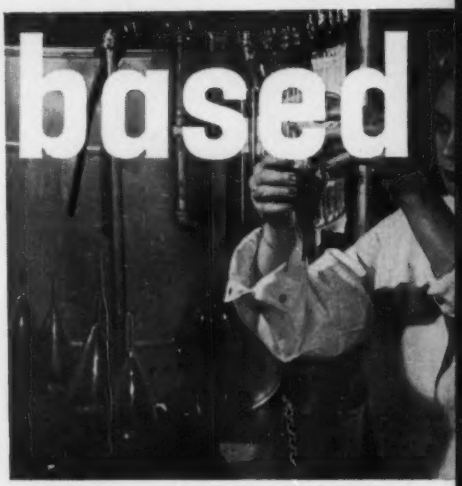

It has taken the combined

efforts of two great organizations – **ONYX** and **DOW CORNING**

– to develop and make available to the textile industry

**REPELOTEX** a revolutionary water repellent that has

life-of-the-fabric durability, that is FOUR WAYS BETTER

than any other water repellent yet produced.

***. . . AND TO BACK IT UP, A TV PROGRAM.***

Tags promoted on TV will be available to manufacturers using fabrics finished with Repelotex made with Dow Corning silicones.

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| | |
|---|---|
| ***ONYXSANS*** | Permanent softeners with standard laundering and dry cleaning for the life of the fabric. |
| ***XYNO RESIN G-36*** | Finish to impart highly durable, stiff resilient effects. |
| ***XYNOFIX FL*** | An outstanding dye fixative. |
| ***XYNO FINISH 9909*** | Unusual softener for cotton and synthetic fibers with outstanding resistance to color change. |

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TEXTILE DIVISION

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For Export: ONYX International, Jersey City 2, N. J.

| COMPARATIVE TRIAL OF WATER REPELLENTS | | | | |
|---|---|---|---|---|
| | REPELOTEX ST. | ZX | NX | PX |
| *% Used in Bath* | 5 | 8 | 12 | 10 |
| *Initial Spray* | 90 | 80 | 90+ | 90 |
| *After 1 Dry Cleaning* | 90 | 70 | 80 | 70 |
| *After 3 Dry Cleanings* | 90 | 70 | 70 | 70 |
| *After 5 Dry Cleanings* | 90 | 50 | 70 | 70 |

**CLOTH:** 50/50 Acetate-Viscose gabardine.
All treatments applied in conjunction with crush-resistant finish, and according to manufacturer's directions.
Wet pick-up: 63 to 64%. Dry cleaned with Stoddard solvent.

# REPELOTEX

# 4

***FOUR WAYS BETTER*** by actual laboratory tests* after repeated launderings and dry cleanings, new REPELOTEX offers proof positive of the ultimate in water repellents:

***DURABILITY*** — Practically any fabric, of any type of fiber or construction, can be treated with REPELOTEX with the assurance of near permanent repellency.

***STAIN AND SPOT RESISTANCE*** — Unusually resistant to non-oily spots and stains, such spots can easily be removed. Oily spots are dry-cleaned out without loss of repellency in fabrics treated with REPELOTEX.

***AS A FINISH — REPELOTEX*** has a number of other remarkable properties that make it a must for successful water repellency: REPELOTEX improves sewability; imparts a softer, quality hand; improves the strength of resin-treated fabrics; resists mark-off effects; is fully compatible with resin treatments; has no unpleasant odor; requires no after-wash; is exceptionally stable.

*Laboratory spray ratings determined by Standard Test Method 22-52 of the AATCC.

**AT A COST LOWER** or no more than ordinary silicone or non-siliconic finishes, you get all the plus values of REPELOTEX, developed out of the resources of ONYX and DOW CORNING. *Write or wire for a most convincing trial.*

POWELL VALVES . . . THE COMPLETE QUALITY LINE . . . POWELL VALVES

. . . THE COMPLETE QUALITY LINE . . . POWELL VALVES . . . THE COMPLETE QUALITY LINE . . .

# POWELL LUBRICATED PLUG VALVES

FIG. 3059G—300-Pound Steel Flanged End Valve. Sizes 6" to 12".

FIG. 1559—150-Pound Steel Flanged End Valve. Sizes 1" to 4".

POWELL VALVES . . . THE COMPLETE QUALITY LINE . . . POWELL VALVES

Powell Valves—the *complete* quality line—offer many outstanding features in these new Lubricated Plug Valves, such as quick and sure operation and a positive seal when the valve is closed.

Valves are available with screwed or flanged ends; single, screwed and bolted gland types, and in Semi-Steel, Carbon Steel, Bronze, Ni-Resist, Monel Metal, and Stainless Steel. Semi-Steel valves are rated 175 and 200 pounds W.O.G.; Steel valves, 150 and 300 pounds W.P. Sizes from 1" to 12". Valves in sizes 6" and larger can be furnished with gears for gear operation. Distributors located in principal cities. For descriptive literature—or help on valve problems—write direct to

**The Wm. Powell Company, Cincinnati 22, Ohio.....109TH year**

## The LONG-RANGE VIEW

# *Management and Maintenance*

- **Mills don't know their maintenance costs, yet—**
- **They continue to increase the maintenance department's assignments.**
- **NEEDED—recognition and control**

Starting on page 89 of this issue, we present a special mill-maintenance section. In the course of preparing this section, we talked with several mills about maintenance costs. Not many of them had a clear idea about how much they spend for maintenance. Most of them had all sorts of records of what each mill process costs per unit of production; how much taxes, electricity, water, repair parts, oil, etc. cost; exactly how many hundredths of a cent it costs to doff a bobbin or tie in a warp.

Yet they have not applied the same engineering methods of analysis and control to maintenance. And in the face of that lack of certain knowledge, many mills are expanding the duties of their maintenance departments.

### Scope Is Broadening

Just a few years ago, the work under the supervision of master mechanics in textile plants centered around the mill machine shop, with mechanics making a few side trips to production departments to check an electric motor or a line shaft.

Now, the scope of the average mill-maintenance department has broadened to include every production department of the mill. Maintenance mechanics are now checking and servicing variable-speed drives in spinning rooms, making tedious adjustments to electronic controls on slashers, and servicing combination brake-clutches on looms. In each of these cases and on many other similar jobs, shop men are doing work to keep machines running that was formerly done by production section men. Maybe the influx of maintenance departments into production work hasn't yet developed into a large-scale trend; but the fact that there are straws in the wind in that direction, coupled with the ever-growing importance of basic maintenance work on buildings and auxiliary equipment, indicates that maintenance is getting to be Big Business for mills.

It seems to us that mills would do well to consider maintenance departments neither a necessary drain on profits nor a service department to blow up in importance during times of good business and to pinch in economy moves. The maintenance department should be considered as much a money-making department as any other in the mill, with great potential for saving money or wasting money by carelessness and neglect.

### Good Control Is Needed

In that light, mills should put their maintenance under as rigid industrial-engineering control as the production processes of the mill are under. Obviously, it will not be possible to timestudy and standardize all the tasks performed by the maintenance department; but considerable improvement could be made by developing standard methods, translating the work into costs, and keeping close control over the maintenance operations.

Probably no one would welcome such an approach more than plant engineers, master mechanics, head electricians, and other key maintenance men. The complaint of these men always is that management does not know what the maintenance department is doing and the importance of the work. Their biggest headache is selling management on improvement and justifying their existence.

Here is one of the most promising spots in mills today for management to take constructive money-saving, efficiency-improving steps. It is our hope that in another twelve months it will not be such a rare thing to find a mill where management knows what its maintenance costs are.

A. M. Thomas

**STRENGTH YOU CAN COUNT ON . . .**

Today's high speed knitting machines demand Textile Spring-Beard Needles . . . for these needles keep their strength, resiliency and temper, day-in and day-out. The strength and stamina of Textile Wire Products are developed through a special steel formula, special tempering, and electronically controlled manufacture . . . Textile Spring-Beard Needles will help your full-fashioned machines stay young and produce more "firsts".

**TEXTILE MACHINE WORKS, READING, PENNA.**

# *Textile*

## SPRING-BEARD NEEDLES

*Wire Products Division*

TEXTILE MACHINE WORKS, READING, PENNA.

A MESSAGE TO AMERICAN INDUSTRY • ONE OF A SERIES

***Capital Spending Plans for 1955 . . .***

# Here is Good News About Business Prospects

In 1955, American industry is now planning to spend within 5 per cent of the amount it is spending this year on new plant and equipment. This is the tensely awaited result of a check-up just completed by the McGraw-Hill Department of Economics.

Hundreds of companies, by far the largest number in the eight-year history of these McGraw-Hill surveys, cooperated in the check-up. Combined, they represent 29 per cent of all industrial employment and over 60 per cent of employment in the industries where capital investment is highest. Such a broad cross section constitutes a reliable gauge of the plans of industry as a whole.

**PLANS FOR CAPITAL INVESTMENT**

| | MILLIONS OF DOLLARS | | | Percent Change 1954-1955 |
|---|---|---|---|---|
| | 1953 ACTUAL* | 1954 ESTIMATED* | 1955 PLANNED | |
| All Manufacturing | $10,026 | $ 9,249 | $ 8,598 | —7% |
| Petroleum Industry† | 4,600 | 4,875 | 4,920 | +1 |
| Mining | 506 | 380 | 311 | —18 |
| Railroads | 1,312 | 851 | 769 | —10 |
| Other Transportation and Communications | 2,954 | 2,922 | 2,640 | —10 |
| Electric and Gas Utilities | 4,548 | 4,274 | 4,206 | —2 |
| ALL INDUSTRY | 23,271 | 21,784 | 20,727 | —5 |

*United States Department of Commerce; Chase National Bank; McGraw-Hill Department of Economics

†Petroleum refining, included under both "All Manufacturing" and "Petroleum Industry," is included only once in the total

What is the meaning of these plans, detailed by the table below, for capital investment next year? Is it good or bad news, so far as it concerns the prospect of continuing prosperity? It is to this crucial question that this editorial is addressed.

## Key to Prosperity

**It is not only good but very important business news that American industry plans to spend in 1955 almost as much for new plant and equipment as it is spending this year.** The reason it is important is that a high level of activity in the capital goods industries is universally recognized as a particularly potent ingredient of prosperity for the nation as a whole. A dollar spent for capital goods is spent again and again for wages and materials. Its stimulating effects, called by economists multiplying effects, move through the economy in much the same way that a pebble tossed into a pond creates a widening circle of ripples. This is one reason why there is such intense business interest in the surveys of plans for capital investment.

Here are the principal reasons why the results of the McGraw-Hill survey are a good omen for continuing prosperity:



Textile World

**1. American industry is demonstrating that it does not need the stimulus of war-created shortages, or a rearmament boom, in order to maintain a very high level of capital investment.**

The slight decrease now planned for 1955 will still maintain a level only about 11 percent below the all-time peak attained in 1953 under the stimulus of a defense expansion boom.

**2. Capital investment promises not merely to stabilize at a high level, but actually to increase as 1955 goes on and thus give renewed stimulus to business.**

The level of investment now planned for 1955 by *industry* — manufacturing, petroleum, mining, transportation, communications and utilities — is within 5 per cent of 1954. Contract awards for *commercial* construction — stores, office buildings, warehouses and other service establishments — as compiled by the McGraw-Hill publication ENGINEERING NEWS-RECORD, indicate a substantial increase in 1955. Thus total capital expenditures by *all business* may be very close to this year's total.

Actually, in the fourth quarter of 1954, business capital expenditures, as reported to the U. S. Department of Commerce, are down about 2.5 per cent from the average for the year as a whole. So there is a good chance that during 1955 the annual rate of capital investment will rise above this present level.

## Effect of Tax Changes

The plans reported by the McGraw-Hill survey are preliminary plans, reported at the beginning of the period of business budgeting for 1955. As budgets are completed, new projects may bring the total expenditure that is planned even closer to this year's figure and thus make an even greater contribution to continuing prosperity.

But it also cannot be too strongly emphasized that these are plans; they are not accomplished investments. As such they have the vulnerability to changed conditions that characterize any plans.

There is some indication in the results of the McGraw-Hill check-up that one change in conditions recently made by the United States government has had an important stimulating effect on plans for business investment next year. It is a liberalization of the allowances for depreciation. Apparently encouraged by this provision, most of the smaller companies are planning to maintain or increase their purchases of new equipment next year, whereas during the past three years their expenditures have been declining. This is obviously a development that strengthens our economy.

A government insensitive to the key importance of capital investment by business, both in providing prosperity and in raising our standard of living, might easily destroy the present plans. One of the easiest and surest means to do this is excessive taxation of business profits which are the key ingredient of business investment. Whether the extraordinarily constructive program recently enacted by the federal government in the field of business taxation can be sustained remains to be seen. **If it can be sustained, the remarkably cheering plans of business for capital investment in 1955 can readily become firm foundations for a continuing prosperity.**

*This message is one of a series prepared by the McGraw-Hill Department of Economics to help increase public knowledge and understanding of important nationwide developments that are of particular concern to the business and professional community served by our industrial and technical publications.*

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Donald C. McGraw

PRESIDENT

**McGRAW-HILL PUBLISHING COMPANY, INC.**



## What's Wrong With This Interview?

In this case, Ruth is a good worker, but she doesn't get along with the other girls in the department. Here is how the supervisor handles the situation:

RUTH: He is, but he's always worked 48.

SUPERVISOR: Those are hardly short hours. Actually, 40

Textile World
January, 1955 • Vol. 105-No. 1

# What's Wrong With This SUPERVISOR INTERVIEW?

**►Here is a practice interview between two supervisors, with one supervisor playing the part of Ruth, a worker who can't get along with the other girls in her department. Judged by the list of 11 don'ts, how do you think the interviewing supervisor's performance could be improved?**

By **THOMAS B. WINSTON,** Assistant Editor, TEXTILE WORLD

THE BIGGEST PART of every supervisor's job is talking with people. Some plants have gone into a formal program of counseling interviews between each supervisor and the people under him in an effort to improve the supervisor's ability to talk with people and thereby improve job performance. But whether or not you use formal interviews, the principles of counseling apply to your job.

There are ways of talking to people that get results, and there are ways that don't get results. It takes skill and training to develop these techniques, and one method of training is to have practice sessions with one supervisor taking the supervisor's part and another taking the employee's part. [The method was described in TEXTILE WORLD, November '53, p. 121.] The fruitful part of these practice sessions comes afterwards, when the supervisor's performance is criticized.

An actual practice session is reproduced here, with comments pointing out places where the supervisor's technique could be improved. By using the list of 11 don'ts, you can decide for yourself how the supervisor could have done a better job.

## Eight Rules Help

Besides the list of don'ts, there are eight general rules for conducting a review of job performance: (1) prepare for each conference, (2) pick a good time and place, (3) open each interview with its purpose and importance, (4) begin by praising strong points, (5) review performance weaknesses last, (6) develop plans for changing weaknesses into strengths, (7) review and summarize plans before the person leaves, and (8) follow up.

However, all these rules cannot be applied strictly to a practice session. In a real situation, the supervisor could do a better job of preparation; but the practice sessions clearly point up how some techniques don't get results.

### 11 Interviewing Don't

1. Don't do all the talking yourself.
2. Don't dominate the conversation or cross-examine.
3. Don't lose control of the interview.
4. Don't argue.
5. Don't bluntly point out your disagreements.
6. Don't be a judge of rightness and wrongness.
7. Don't create the impression that you know all the answers.
8. Don't dwell on weaknesses.
9. Don't emphasize past failures.
10. Don't compare a man with somebody else.
11. Don't let the person leave with doubt as to what he should do to improve himself.



RUTH: I didn't say they weren't.

SUPERVISOR: Wouldn't you like it better if everyone got

You can't be a friend by being suspicious and apart from people. You have to show

## What's Wrong With This Interview?

In this case, Ruth is a good worker, but she doesn't get along with the other girls in the department. Here is how the supervisor handles the situation:

SUPERVISOR: Ruth, I called you in here to review your progress with you. I am doing that with everyone in our department.

RUTH: I think it's a good idea. I overheard some of the other girls say it was the first time you'd talked with them since they were hired.

**[The supervisor is right in stating the purpose of the interview. However, he doesn't give her enough time to adjust to being called in to see her boss.]**

SUPERVISOR: I didn't know it was that bad. I thought they heard too much out of me.

RUTH: Well, I meant you hadn't talked about how we were doing.

SUPERVISOR: So long as I didn't have something to complain about, I figured they knew everything was all right.

**[The supervisor started out by trying to admit, in a joking way, that things were going to be different now; but Ruth is evidently quite sensitive about being misunderstood. In turn, the supervisor felt it necessary to defend himself. The supervisor can't control the discussion if he stays on the defensive.]**

RUTH: You never can tell. Some of the girls thought they were doing all right, but they were laid off.

SUPERVISOR: We did have to cut down, you know.

RUTH: Are some more girls going to be laid off?

SUPERVISOR: No, not if we all get on the ball. That is why I am talking with everyone: so we don't have to lay off any more.

**[The supervisor pulls a dirty trick here. He just got through saying that the girls were laid off because the department had to cut down, presumably because of bad business. Now he is implying that no one else will get laid off if everybody gets on the ball. In effect, he is issuing a threat. He then strengthens this threat by saying that is the reason he is talking with everybody. In the beginning, he said the purpose was to review her progress; so by his own admission, the interview has become a laying-down-the-law session.]**

RUTH: I sure hope I don't get the sack. My husband is on short hours, and we are just getting by.

SUPERVISOR: I thought Jerry was working 40 hours.

**[Why does the supervisor consider it necessary to correct Ruth? Also, it would probably be better to leave the discussion of Jerry's working hours to Jerry's supervisor.]**

RUTH: He is, but he's always worked 48.

SUPERVISOR: Those are hardly short hours. Actually, 40 hours is a normal work week most places.

**[The supervisor is missing the boat here. Ruth and her family are faced with a reduction in income, and that fact is more important to her than the number of hours in a normal week. If the supervisor would recognize her position, he could get across his points by mixing them with a little sympathetic understanding of Ruth's problems.]**

RUTH: Well, if he doesn't get some overtime soon, we will have to cut expenses somewhere.

SUPERVISOR: I wouldn't plan on overtime. Every company must keep its costs down these days, and overtime raises costs. There is plenty of cloth for people to buy these days, and they are not paying any more than they have to.

**[The supervisor here gives up on this argument, as well he might. Ruth's husband will be surprised to learn about his overtime prospects through her.]**

SUPERVISOR: Now about you. You stay at your job all the time and turn out a lot of good work. You keep your machine clean, and your bench is always neat as a pin. The only complaint I have about your work is that you don't get along with the other girls.

**[This "Now about you" return to the main subject is abrupt, but at least the supervisor is back. He starts out by saying something nice; but by going directly into a criticism without even a pause, the supervisor loses the benefits of this technique. In addition, by making an abrupt complaint, he puts Ruth on the defensive. He could easily bring up the subject without labeling it a complaint. Next, the supervisor tries to pin Ruth down to specific answers, but he gets nowhere.]**

RUTH: Well, if they stay away from me, they will get along fine.

SUPERVISOR: Why don't you like them?

RUTH: I didn't say that.

SUPERVISOR: No, but you do give me that impression.

RUTH: Well, I wish they would mind their own business.

SUPERVISOR: Would you like to work off in a room by yourself?

RUTH: No, but I wish they wouldn't talk about me.

SUPERVISOR: What do they say?

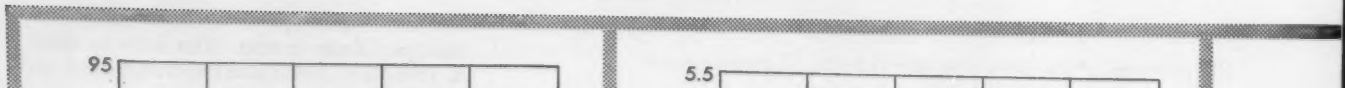
RUTH: I don't know, but they do talk.

SUPERVISOR: How do you know they talk about you?

RUTH: Well, I am the only one that doesn't get mixed up in their cat sessions.

SUPERVISOR: Maybe if you got to be one of them, you would find they were all nice people.





RUTH: I didn't say they weren't.

SUPERVISOR: Wouldn't you like it better if everyone got along well with each other?

RUTH: We'll get along if they leave me alone.

SUPERVISOR: Have you tried to be a real friend to the other girls?

RUTH: You can't be friends with people who talk about you.

SUPERVISOR: Do they have something to talk about?

RUTH: Well, it's none of their business.

SUPERVISOR: You know, I think you imagine that they talk about you. I'll bet if you'd go halfway you would find they are pretty fine girls. Why don't you try treating them as you would like to be treated?

**[Here the supervisor puts his finger on Ruth's trouble, but he doesn't seem to have any understanding of it. She feels left out of the group, and she feels that the other girls have turned against her. With this problem, the supervisor could probably get better results by asking some of the other girls to go out of their way to be friendly to Ruth rather than trying to get Ruth to take the initiative. He continues to pound away at her.]**

RUTH: I don't need any sympathy from them.

SUPERVISOR: Your whole attitude doesn't help to make this a good place to work.

RUTH: You said I got out my work.

SUPERVISOR: That's right, and I appreciate it. At times, you do upset some of the other girls. I don't like that and can't let it continue.

**[Laying down the law again. This approach is not likely to help Ruth change her ways. The supervisor has a tendency to make general threats that he has no intention of carrying out.]**

RUTH: Now what have they been telling you about me?

SUPERVISOR: I'm not blind. I can tell every time you girls have had a tiff. Work doesn't get done, mistakes are made, all because people don't get along with each other.

RUTH: Well, I'm sorry if it's my fault.

**[The interview takes a turn for the better. There is a great deal of difference between saying "you upset some of the other girls" and "you girls have had a tiff." The second approach doesn't put the blame on Ruth, and she doesn't have to defend herself. Furthermore, this second approach recognizes Ruth as part of the group, and that is the best recognition that can be given to her.]**

SUPERVISOR: You can prove you're sorry by learning how to get along with the other girls here. May I suggest that you start by being friendly? You'll have friends only if you're a friend. You can't be a friend by being suspicious and apart from people. You have to show an interest in them and the things they are interested in.

RUTH: Well, I'll try.

**[Ruth's cooperation is a little surprising because of the supervisor's return to the direct, personal approach. Her previous reaction would have been something like "you can't be friends with people who talk about you." Evidently, a little recognition goes a long way with Ruth. However, Ruth could be just telling the supervisor what she thinks he wants to hear.]**

SUPERVISOR: I wish you'd say you'll do it.

RUTH: All right, I'll do it.

**[This supervisor is a perfectionist.]**

SUPERVISOR: Have you ever read the book 'How To Win Friends and Influence People'?

RUTH: I've heard of it, but I never read it.

SUPERVISOR: You can get it in the library.

RUTH: Well, if you say I should read it, I will.

**[Communications depends on more than the bare words in a sentence. The supervisor might as well have said, "Ruth, you ought to read that book."]**

SUPERVISOR: I didn't say you should, but it has helped a number of people to get more out of life. Mary says she would never have gotten to be a floor-lady if she hadn't read that book.

RUTH: Sounds all right. I'll try it.

**[If Ruth reads the book, she will do it because Mary did it. The supervisor could have avoided his abruptness and awkwardness by mentioning Mary before mentioning the book. But it would probably be better not to bring Mary into it at all.]**

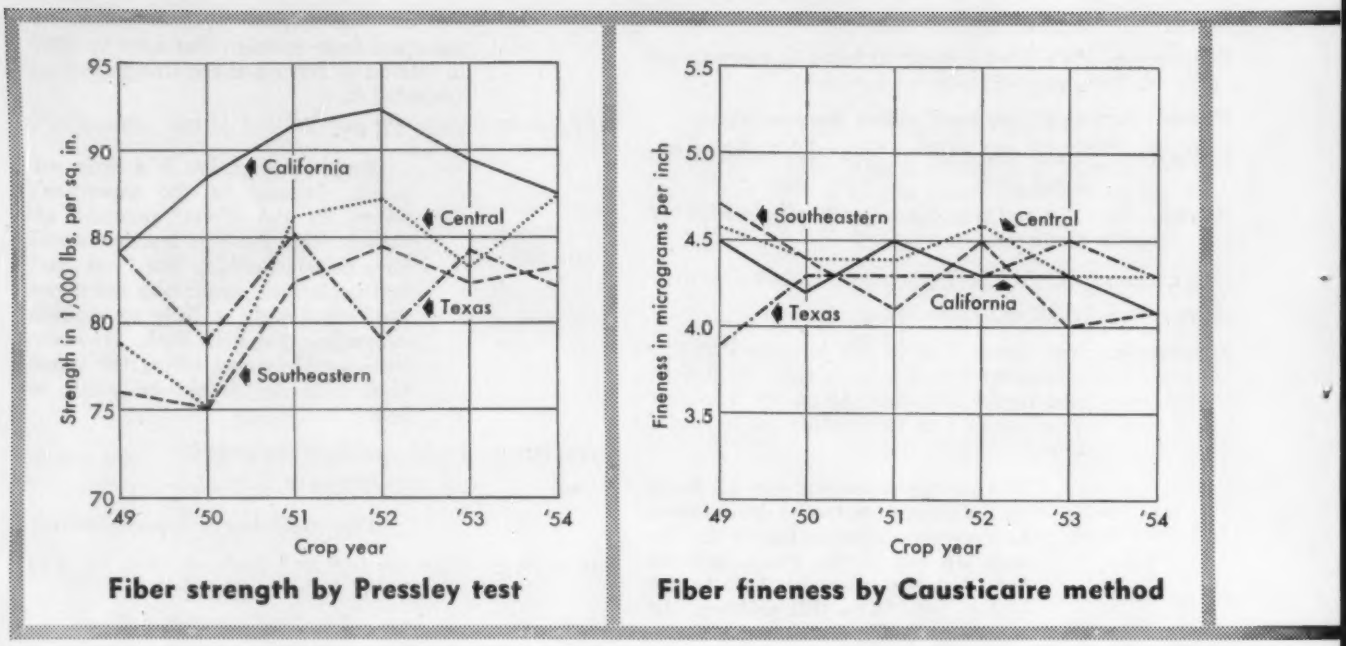
SUPERVISOR: I'm glad to have this chance to get things off my mind. They have been churning around in there for some time.

RUTH: Guess that's why you haven't been very sociable lately. It seemed to me that you were friendly with everyone but me.

SUPERVISOR: I haven't meant to be that way. Guess I'm like everyone else. When something is on my mind, it shows where I don't want it to show. I'm glad you told me. I'll prove that I'm your friend by being one. That formula never fails.

RUTH: Thanks for telling me what you have. I'll read the book and do my best to be friends with the girls.

The interview ends with what appears to be a positive attitude shown by both the supervisor and Ruth. There is no indication that Ruth's attitudes have actually changed, and Ruth did as much interviewing as the supervisor did. We can only hope that the supervisor is sincere in his desire to be friendly and will develop more insight into Ruth's problems.




**Fiber strength by Pressley test**

**Fiber fineness by Causticaire method**

# How 1954 COTTON Stacks Up

**Compared with the 1953 crop, 1954 cotton is—**

- About as strong
- Slightly finer

**Yarns made from the new cotton are—**

- About as strong
- Of poorer appearance

By **JOHN M. COOK,** Cotton Technologist, USDA

FIBER AND SPINNING TESTS on 1954 cotton from all major growing areas indicate that this year's crop has about the same fiber strength and is a little finer, that yarn strength is about the same, and that yarn appearance is down.

The test results, broken down here by sections and also by states, are based on first pickings. All comparisons are with first pickings of previous years.

Cottons representing most staple lengths grown commercially are included in this study. Most of the samples, therefore, fall in the range of 1⅛ to 1⅜ ins. The proportion of samples falling in this length range is smaller for 1954 than for 1953; so we can expect this new-crop cotton to have a slightly shorter average staple length.

### Fiber Strength

No section or state produced cotton that averaged extremely high or low in fiber strength.

California and Central cottons are the strongest—87,000 lbs. per sq. in. Central samples equal their best year, 1952, in that respect. Both California and Central are in our Strong range (86,000 to 95,000 lbs.).

Southeastern cotton is 1,000 lbs. stronger than last year. Texas cotton, weakest of any section this year, averages 82,000 lbs. Both of these sections fall into the Average range (76,000 to 85,000 lbs.).

Within sections, the Central states show a wide range—from 83,000 lbs. in Tennessee and Missouri to 88,000 lbs. in Mississippi.

### Fiber Fineness

Fineness for each section falls within the Average range of 4.0 to 4.9 micrograms per inch for upland cottons.

California's cotton is finer than any tested from this state in seven years.

Southeastern cottons average 0.1 coarser than last year—4.1 for 1954. But the range within the section is wide—from 3.6 for South Carolina to 4.4 for Georgia.

Central cotton, at 4.3, is as fine as it has been since 1948.

Texas cotton, at 4.3, is slightly finer than 1953, which was the coarsest crop since 1948.

All fineness measurements were made by the Causticaire method.

### Yarn Strength

The average yarn-strength index for 1954 is about the same as 1953 for all sections except California, which dropped from 107 to 103 but still leads all other sections.

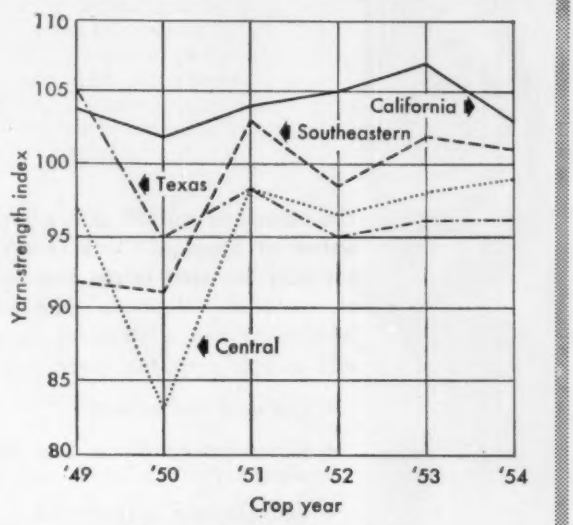
Lots were spun into carded yarns ranging from 14s to 60s. An index of 100 means that the yarn is at the level expected of it for the staple length involved.

Southeastern yarns are slightly weaker, Central yarns are slightly stronger, and Texas yarns are the same as last year.

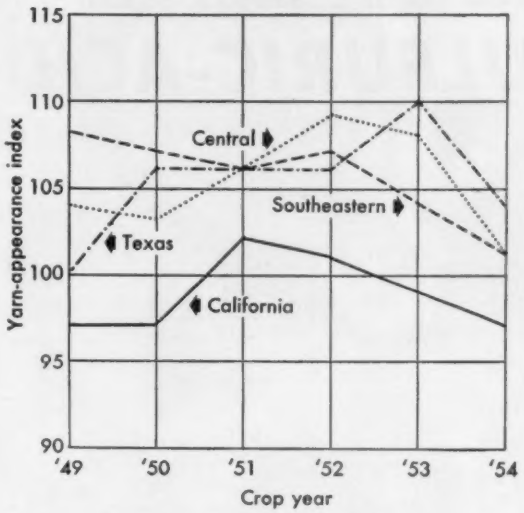
Within sections, there was a wide range in the Southeast—from 98 in



# How One Mill Cut




**Yarn-strength index**




**Yarn-appearance index**

## Individual Results From 12 Cotton-Producing States

| | Fiber strength (1,000 lbs. per sq. in.) | | | | | | Fiber fineness (micrograms per inch) | | | | | | Yarn-strength index | | | | | | Yarn-appearance index | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | '49 | '50 | '51 | '52 | '53 | '54 | '49 | '50 | '51 | '52 | '53 | '54 | '49 | '50 | '51 | '52 | '53 | '54 | '49 | '50 | '51 | '52 | '53 | '54 |
| No. Car. | 74 | 73 | 80 | 81 | 85 | 82 | 4.8 | 4.5 | 4.4 | 4.8 | 4.0 | 4.0 | 89 | 93 | 109 | 96 | 105 | 104 | 107 | 108 | 101 | 109 | 104 | 101 |
| So. Car. | 74 | 75 | 78 | 84 | 80 | 82 | 4.4 | 4.4 | 4.4 | 4.2 | 4.0 | 3.6 | 80 | 97 | 105 | 103 | 102 | 107 | 105 | 108 | 101 | 101 | 102 | 92 |
| Georgia | 77 | 76 | 84 | 91 | 83 | 83 | 4.9 | 4.4 | 4.0 | 4.6 | 4.1 | 4.4 | 97 | 89 | 99 | 98 | 100 | 99 | 111 | 105 | 110 | 115 | 104 | 103 |
| Alabama | 78 | 75 | 86 | 89 | 79 | 83 | 4.6 | 4.4 | 3.9 | 4.4 | 3.8 | 4.2 | 94 | 89 | 99 | 94 | 102 | 98 | 109 | 108 | 109 | 112 | 106 | 104 |
| Wtd. avg. | 76 | 75 | 82 | 84 | 82 | 83 | 4.7 | 4.4 | 4.1 | 4.5 | 4.0 | 4.1 | 92 | 91 | 103 | 98 | 102 | 101 | 108 | 107 | 106 | 107 | 104 | 101 |
| Tenn. | 79 | 73 | 87 | 87 | 85 | 83 | 4.4 | 4.2 | 4.3 | 4.6 | 4.1 | 4.3 | 96 | 80 | 100 | 92 | 99 | 94 | 102 | 99 | 108 | 113 | 107 | 108 |
| Miss. | 79 | 77 | 87 | 88 | 82 | 88 | 4.7 | 4.5 | 4.4 | 4.5 | 4.2 | 4.3 | 97 | 84 | 98 | 96 | 99 | 101 | 104 | 106 | 105 | 106 | 107 | 100 |
| Missouri | 79 | 72 | 85 | 87 | 87 | 83 | 4.3 | 3.8 | 4.3 | 4 6 | 4.4 | 4.2 | 102 | 88 | 99 | 97 | 97 | 101 | 103 | 98 | 102 | 109 | 110 | 100 |
| Arkansas | 80 | 73 | 87 | 88 | 85 | 87 | 4.6 | 4.4 | 4.5 | 4.7 | 4.4 | 4.2 | 94 | 81 | 97 | 97 | 98 | 97 | 105 | 101 | 107 | 111 | 109 | 98 |
| Louisiana | 77 | 74 | 85 | 83 | 78 | 87 | 4.6 | 4.6 | 4.5 | 4.8 | 4.3 | 4.5 | 95 | 81 | 97 | 94 | 93 | 99 | 105 | 103 | 108 | 112 | 110 | 103 |
| Wtd. avg. | 79 | 75 | 86 | 87 | 83 | 87 | 4.6 | 4.4 | 4.4 | 4.6 | 4.3 | 4.3 | 97 | 83 | 98 | 96 | 98 | 99 | 104 | 103 | 106 | 109 | 108 | 101 |
| Texas | 84 | 79 | 85 | 79 | 84 | 82 | 3.9 | 4.3 | 4.3 | 4.3 | 4.5 | 4.3 | 105 | 95 | 98 | 95 | 96 | 96 | 100 | 106 | 106 | 106 | 110 | 104 |
| Arizona | 74 | — | 85 | 94 | 87 | 84 | 4.2 | — | 4.2 | 4.0 | 4.1 | 4.1 | 88 | — | 102 | 100 | 102 | 94 | 97 | — | 92 | 95 | 99 | 92 |
| California | 84 | 88 | 91 | 92 | 89 | 87 | 4.5 | 4.2 | 4.5 | 4.3 | 4,3 | 4.1 | 104 | 102 | 104 | 105 | 107 | 103 | 97 | 97 | 102 | 101 | 99 | 97 |

Alabama to 107 in South Carolina. This index of 107 for South Carolina is the highest on record for the section, except for North Carolina's 109 in 1951.

The average for the Central section, at 99, is higher than any year since 1949.

### Yarn Appearance

All sections produced yarns with an average appearance index lower than last year. An index of 100 equals C+ yarn.

As in 1953, Texas cottons lead—104 for 1954. But this index is six points lower than last year for Texas.

Southeastern cottons are also lower —101 this year vs. 104 last year. Samples from South Carolina average 92 and those from Alabama 104.

Central cottons have an appearance index lower than any year since 1948 for this area.

California cottons dropped again this year—to 97. This index, the lowest since 1950, is still higher than 1948's low of 94.

### How To Use These Results

The results from this report can be used to compare cottons from different locations to determine whether they will meet a particular end use. Furthermore, fiber properties of questionable samples available for a mill run or purchase may be compared with those in the report, along with spinning qualities, to estimate the level that should be obtained.

### How Samples Are Taken

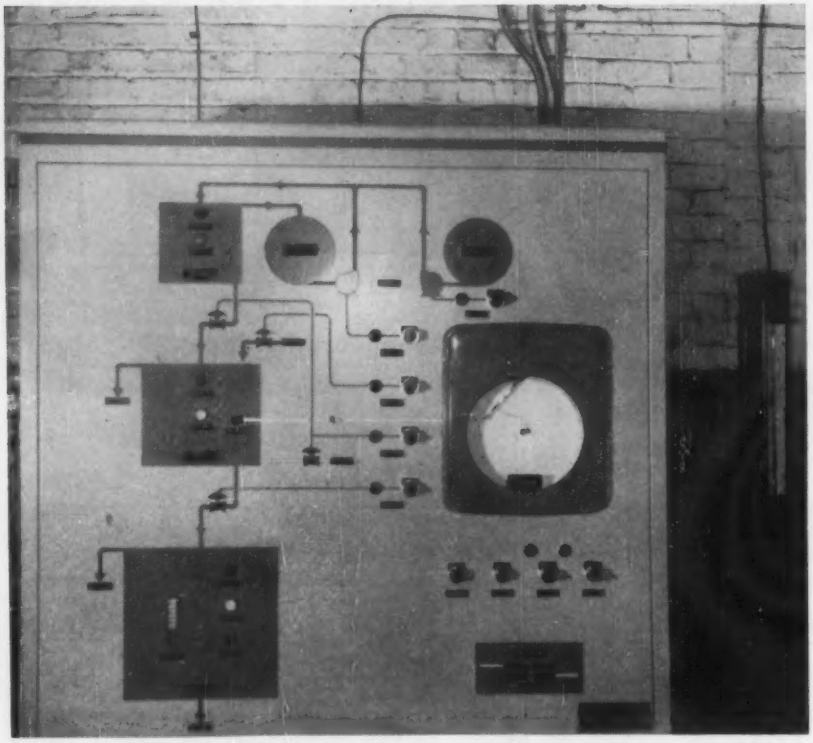
Cottons tested are from areas growing predominantly one variety and producing

CONTINUED ON PAGE 139

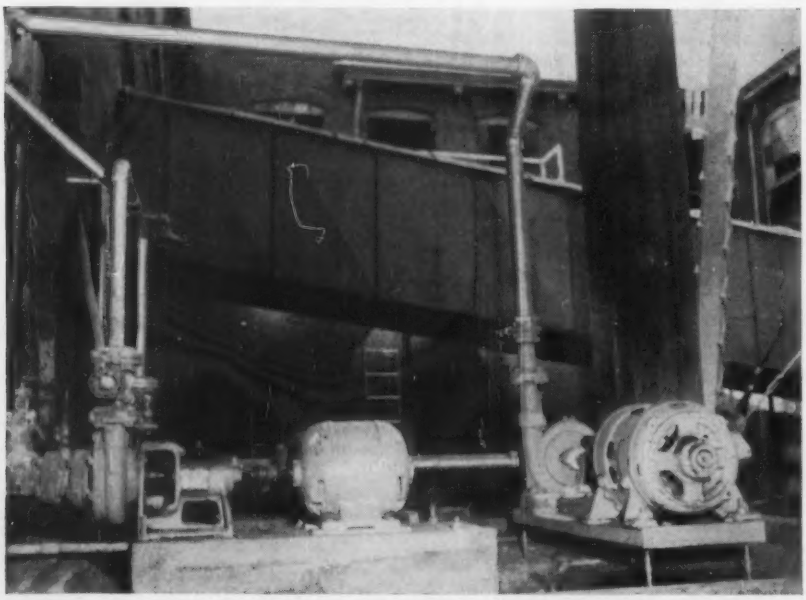


pumped to a head tank on the third floor of the finishing house by a 1 hp

# How One Mill Cut SULFURIC-ACID Costs



CONTROL PANEL graphically illustrates the entire acid-dilution-system flow. Signal lights indicate each phase of the operation and warn of any abnormal conditions.



TWO PUMPS, alternated weekly for maximum life, pump concentrated sulfuric acid from the storage tank to the head tank. The pumps are equipped with mechanical seals instead of packing.

**The automatic sulfuric-acid dilution system at Standard-Coosa-Thatcher has paid for itself in the first year of operation. Used for supplying mercerizers and a bleaching range with an acid bath, the system has—**

- **Cut acid cost in half**
- **Eliminated dangerous acid handling**
- **Reduced acid consumption**

**By MICHAEL LONDON**
Assistant Editor, TEXTILE WORLD

AN AUTOMATIC sulfuric-acid dilution system for the mercerizers and the bleaching range at Standard-Coosa-Thatcher Co., Chattanooga, Tenn., combines safety with lower costs. By replacing carboy purchases of concentrated sulfuric acid with tank-car-lot purchases, the plant cut the cost of acid in half; and because personnel no longer handles the acid, workers are in no danger of being drenched with corrosive liquid.

The system was installed a year ago at a total cost of approximately $13,000. The expense, however, has been written off in the first year's operation through a drop in acid costs, handling costs, and acid consumption. And constant quality is preserved through uniform acid concentration in processing.

## Panel Board Illustrates System

Essentially a batch process, the system automatically makes up acid to a predetermined concentration whenever it is needed. The controls, furnished by Foxboro Co., are set into a compact panel and regulate the system. The panel board graphically illustrates the entire flow of the system and includes signal lights that indicate each phase of the process. Visual and audible alarms are also provided to signal any abnormal condition to the operators.

The concentrated sulfuric acid at 66° Be. is pumped from tank cars to a 12,000-gal. storage tank. Another tank with an 8,000-gal. capacity is also available for additional storage.

From the storage tank, the acid is

pumped to a head tank on the third floor of the finishing house by a 1-hp. pump made of Carpenter No. 20 stainless steel. Two such pumps are available, and they are alternated every week for maximum life. They are equipped with mechanical seals instead of packing.

### Gravity Feed Used After Head Tank

The head tank, made of Type 316 stainless steel, is connected to a cutting tank by stainless-steel piping; and a diaphragm actuates a value between the tanks. To prevent corrosion at a critical point, the stem of the diaphragm is made of Durimet steel. The cutting tank, on the same floor as the head tank, is used for diluting the acid and is placed below the head tank to take advantage of gravity feed. Gravity feed is also used for all further liquid flow in the system.

When the liquid level in the cutting tank reaches a low-liquid-level probe, the diaphragm valve opens and water enters the cutting tank. When the level reaches a second probe, the water valve closes and the acid-supply valve opens. Acid then enters the cutting tank and continues to fill the tank until a conductivity cell measures a predetermined concentration, usually 15%.

However, when extra-heavy yarns are being processed, the concentration may run as high as 23%. The controller on the panel shuts off the strong-acid feed when the desired concentration has been reached. Air is used to agitate the combination of acid and water while the acid is being added to the tank.

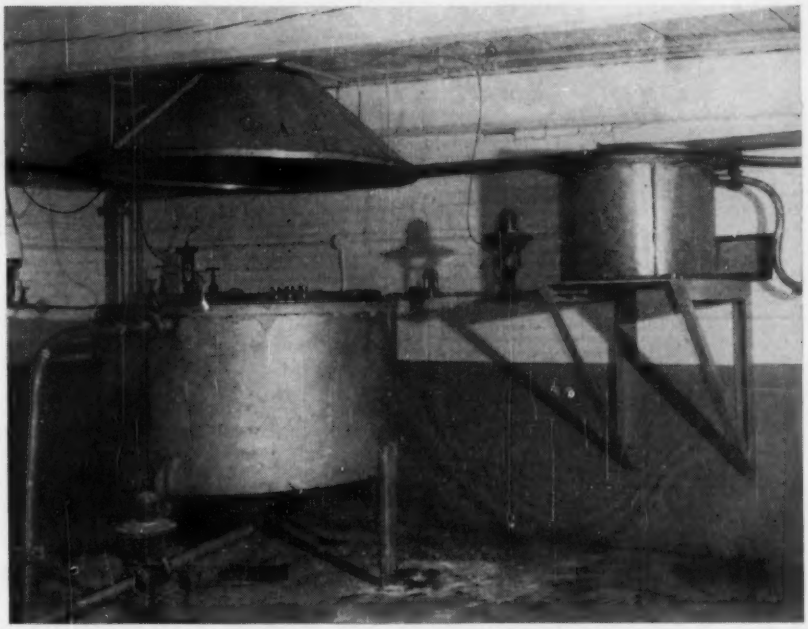
The cutting tank supplies a feed tank on the floor below. When the feed tank, a 1,200-gal. lead-lined vessel, requires more acid, a valve at the cutting tank opens and the dilute acid pours into the feed tank. Piping between these two tanks is made from Carpenter No. 20 stainless steel with a lead-lined cast-iron valve equipped with a Kel-F diaphragm. Because the temperature of the diluted acid is relatively stable by the time it reaches the feed tank, the lead lining is not in danger of cracking.

### Acid Concentration Is Constant

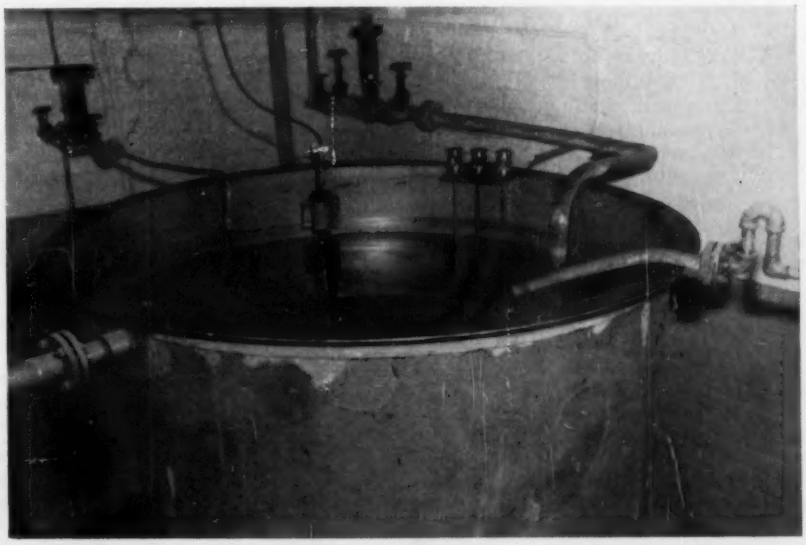
The feed tank supplies the acid for a skein mercerizer, two warp mercerizers, and a bleaching range. An additional conductivity controller in each of these units constantly maintains the proper acid concentrations by automatically activating diaphragm valves in the line from the feed tank to supply the required acid. Although the conductivity cell keeps the acid concentration constant, the acid baths are titrated every 15 mins. to keep a positive check on the acid concentrations.

As an added safety feature, showers have been installed at the railroad siding where the tank cars are unloaded, near the pumps, and in the cutting-tank room. A pull of a chain is all that is required to operate a shower.

To date, the showers have not been used, but their presence has helped personnel morale; and if they should be required in an emergency, the showers will be invaluable in preventing serious injury.



**HEAD TANK (right) is placed above the cutting tank to take advantage of gravity feed. The head tank is made of Type 316 stainless steel. The diaphragm-actuated valve between the tanks opens when proper water level in the cutting tank has been reached.**



**CUTTING TANK, made of Carpenter No. 20 stainless steel, is used for diluting the concentrated acid. When the liquid level drops to the low-level probe (left rod of the set of three on far side of tank), the tank receives water until the level reaches the center probe. The water supply is then shut off, and acid enters the tank until the temperature-compensated conductivity cell (center-rear) measures the appropriate concentration, usually 15%.**

# Meet ARNEL—

# Celanese's New Fiber

**► The latest synthetic, a cellulose triacetate fiber, has many properties of more-expensive fibers but is priced at 55¢ per lb. Some properties are similar to those of acetate.**

ARNEL is the new cellulose triacetate fiber made by Celanese Corp. of America. In the development stages, this fiber was known as X-100.

Physical properties and general data are summarized on the opposite page.

One of the most important features of Arnel is its price: 55¢ per lb. for staple. Fabrics that have been properly heat-treated are said to withstand ironing, without sticking, at temperatures up to 482° F. Melting occurs when temperature is raised to 572° F.

Arnel is presently produced in 2.5 den., bright and dull. Other deniers will be produced later. The fiber can be cut to any standard length. Filament yarns will be produced in standard deniers later.

### Fabric Characteristics

Here are the characteristics claimed for heat-treated Arnel fabrics:

1. Machine-washable at any temperature
2. No color loss or staining in repeated washings up to 160° F.
3. Quick drying
4. Can be tumble-dried
5. Little or no ironing needed
6. Shape and texture retained after washing
7. Maximum resistance to shrinkage and stretching
8. Durable pleating and textured effects
9. Ironed easily and not damaged by high temperatures
10. Resistant to glazing
11. Excellent wrinkle performance, even at high humidity
12. Durable crease retention
13. Excellent mussing resistance
14. No pilling

### Heat-Treating Arnel Fabrics

For woven fabrics, heat treatment by autoclave, radiant heat, and cans has been found satisfactory.

For knitted fabrics, the autoclave is presently recommended.

For optimum dry-heat treatment, higher fabric temperatures must be attained than with nylon and other synthetics. Autoclave pressures are 20 to 50 psi.

Yellowing may occur if excessive temperatures are used, but the color can be bleached out readily. Excessive heat treatment brings loss in strength.

Commercially available products give good results for functional finishes such as water repellency.

Softeners, antistatic agents, or fabric-hand modifiers should be applied after heat treatment to minimize color formation.

Special effects are possible with embossing and texturing treatments.

### Miscellaneous Information

Arnel fabrics can be dry-cleaned with mineral spirits and perchloroethylene but not with the trichloroethylene used in some European countries.

Crocking resistance of Arnel fabrics is high, both wet and dry and in dark shades.

Dry flex-abrasion resistance is similar to that of acetate, but wet and hot-wet flex-abrasion resistance is much higher than for acetate. No appreciable damage after 50 home-laundering and tumble-drying cycles was reported.

Flammability properties of flat woven fabrics are similar to those of acetate.

Gas-fading resistance is similar to that of acetate if proper dyes and inhibitors are used. Inhibitors are recommended for maximum fume-fading resistance.

There are no static problems in processing.

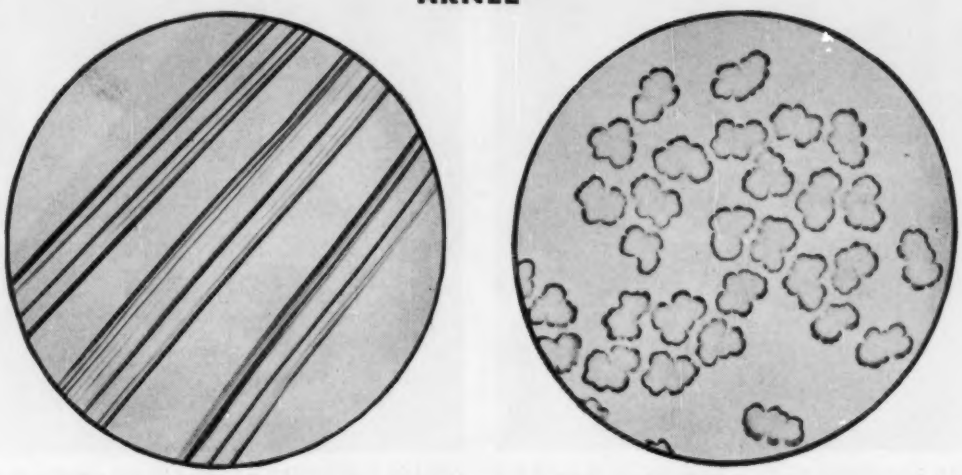
Arnel's resistance to wet-stretching is about twice that of acetate.

### Processing

No special equipment or procedures are necessary for processing, except for special size formulas of commercially available materials.

Standard dyeing equipment is used, and normal finishing and heat-treating techniques are satisfactory where special effects are not desired.

## ARNEL



Longitudinal and cross-sectional views of fibers from 150/40 bright filament-yarn Arnel

### Physical and Chemical Properties

| | |
|---|---|
| **Tensile Strength** (Tenacity) (grams per denier) | Standard 1.2 to 1.4<br>Wet 0.8 to 1.0<br>Std. Knot 1.0 to 1.2<br>Std. Loop 1.0 to 1.2 |
| **Elongation (%)** | Standard 22 to 28<br>Wet 30 to 40 |
| **Modulus of Elasticity** (grams per denier) | 44 |
| **Specific Gravity** | 1.3 |
| **Moisture Regain (%)** (at standard conditions) | 3.2 |
| **Water Absorbency** (at 100% r.h., centrifuging method, heat-treated fabric) | 10 to 11% |
| **Effect of Heat** | Heat-treated fabrics do not stick when ironed at temperatures up to 250° C. (482° F.). Melts at 300° C. (572° F.). Retains 68% of strength after 2 wks. exposure at 130° C. (266° F.). |
| **Effect of Age** | Similar to acetate. |
| **Effect of Sunlight** | Similar to cotton for strength, to acetate for color. |
| **Effect of Alkalis** | No saponification, delustering, or fabric degradation in normal scouring and dyeing up to 206° F. (96° C.) at a pH up to 9.5. Can be saponified completely or partially with high alkali concentrations and high temperatures. Printing and saponification depend on alkalinity of paste and subsequent processing; more resistant than acetate. |

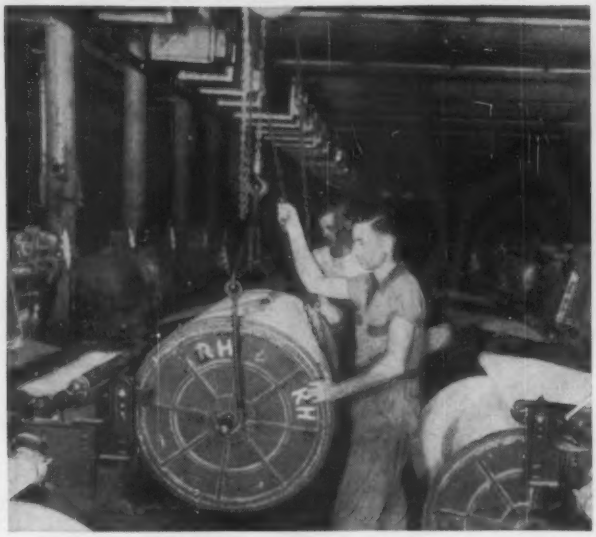
| | |
|---|---|
| **Effect of Acids** | Similar to acetate. Unaffected by weak solutions but deteriorated by strong acids. |
| **Effect of Other Chemicals** | Standard scouring procedures satisfactory for removal of size, oils, or stains. For optimum whites, bleach with Textone, peracetic acid, acid and alkaline hypochlorite. Resistant to delustering and degrading effects of alkaline scouring and acid or basic bleaching. |
| **Effect of Organic Solvents** | Unaffected by mineral spirits of perchloroethylene. Swelled by trichloroethylene, chloroform, and methylene chloride. |
| **Dyes Used** | For high washability, use selected dispersed acetate dyes in closed jigs and winches at a maximum of 205° F. (96° C.). Use accelerants for heavy shades, including navies. Shades up to medium attained at higher temperatures in the same time as acetate. More dye and time needed for heavy shades. |
| **Resistance to Moths** | Similar to acetate. |
| **Resistance to Mildew** | Wholly. |
| **Electrical Properties** | Excellent. |
| **Uses** | Children's wear, men's sport shirts and slacks, women's wear, men's and women's suitings, industrial fabrics. |
| **Method of Manufacture** | Not available. |
| **Identification** | Tests not yet developed. |
| **Stress-Strain Curve** | Similar to acetate. |



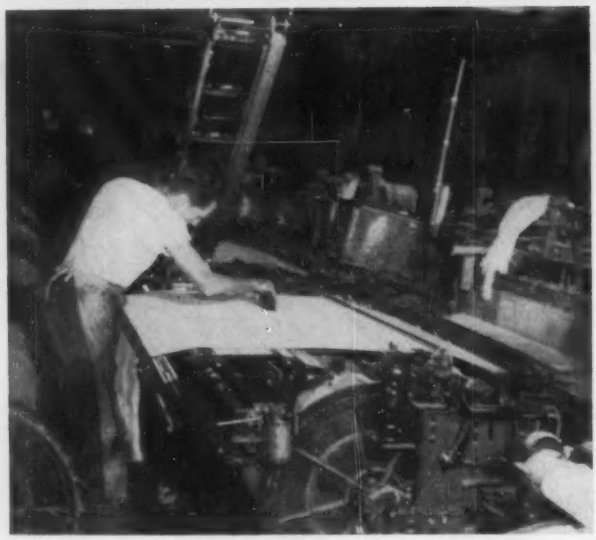
### Old Looms Are Modernized

ERWIN MILL No. 3 at Cooleemee, N. C., has just completed an in-

mornings, the instructors and loomfixers worked on each loomfixer's own



A LOT OF YARN is packed on the 32-in. beams on one group of X-2 looms. Fred Harris and William Witherspoon handle the 608 lbs. easily with a hoist mounted on an overhead rail.



MODERN MACHINERY is typified by this portable electrically driven Barber-Colman L.C.-56 tying-in machine. Roy Williams is tying a twill warp in a single hand.

# *Modern LOOMS and EQUIPMENT For Better Twills at Cooleemee*

► New looms, slashers, and tying-in machines are helping the Cooleemee plant of Erwin Mills, Inc., do a better job of weaving twills and other fabrics. A new air-conditioning system has increased weave-room production 4%.

By **RICHARD B. PRESSLEY,** Associate Editor, TEXTILE WORLD

LONG STRAIGHTEDGES are placed at three convenient locations in the weave room. C. E. Milhollen, Jr., loomfixer, and Bill Howard, weaving overseer, remove a straightedge from its case.

CLEAN LOOMS result from close cleaning. Here, T. N. Beck, weave-room breakdown man, steam-cleans harness cams and pick gears removed from looms at style changes.



## *These Things Cause*

ERWIN MILL No. 3 at Cooleemee, N. C., has just completed an installation of evaporated-water air conditioning to follow up a complete weave-room modernization program.

### Production Increased 4%

Production at Cooleemee is primarily on twills and drills, but several other fabrics are woven. Over half the looms have been replaced with X-2 looms with features especially selected to weave both light and heavy twills. The older looms still in production have been modernized to weave lightweight twills. Both old and new looms have special motions that make it possible to weave high-quality cloth.

The Buensod-Stacey new air-conditioning system, supplemented by five lengthwise rows of one-year-old atomizers, is giving complete control of the weave-room atmosphere. Three new West Point cylinder-type slashers have aided in raising the weave-room production 4%. The slashers have contributed to the atmospheric control because the moisture content of the slashed warps is controlled closely by instruments.

At present 6.75% moisture is being left in the slashed warps. Weave-room temperature is held at 80° F. and relative humidity at 80%. On the hottest summer day, the weave-room temperature has not gone above 84° F.

### Modern Looms Do the Work

The latest addition of looms at Cooleemee is 323 X-2 looms 46 ins. wide. The looms run at 177 ppm.; use endless checkstraps; and have clock-spring top harness motions, electric stop motions, center-fork filling stop motions, Bartlett let-offs, and Draper-Diehl drives. Filling bobbins 8¾ ins. long are used. This length bobbin is also used on all 994 looms at Cooleemee.

Possibly the outstanding feature of this X-2 loom from a production standpoint is the 32-in. beam that holds 608 lbs. of yarn on the average twill weave run on the looms. These looms are used almost exclusively to weave heavy twills and drills.

The other group of X-2 looms is 170 44-in. looms also running at 177 ppm. These looms have clock-spring tops, Bartlett let-offs, electric warp stop motions, center-fork stop motions, and dry-disk clutches with 1¼-hp. motors.

Slotted checkstraps are run. The beam diameter is 26 ins.

In addition to twill-type weaves, these looms are used to weave heavy-weight sports denims, sateens, etc. In most cases, yarns are highly twisted for hard wear.

### Old Looms Are Modernized

There are 351 E-model looms, 44 ins. wide, running at 157 ppm. These looms have six-harness Dwight spring-top harness motions, sliding-bar warp stop motions, Roper let-offs, and side-fork filling stop motions. New dry-disk clutches and ¾-hp. motors have been added to modernize the looms. The loom-beam diameter is 20 ins.

Fabrics woven are twills, lightweight sports denims, tweed effects, Canton flannels, lining flannels, sheeting, and jeans.

There are 150 K-model dobby-equipped looms 40 ins. wide running 157 ppm. The dobby harness capacity is 16. Sliding-bar warp stop motions, side-fork filling stop motions, and Roper let-offs are used. These looms have also been motorized, and ¾-hp. motors with dry-disk clutches are used. The loom-beam diameter is 22 ins.

Twills, sports denims, luggage cloth, etc. are woven on the K-model looms.

Shuttles on all looms are lined with a strip of full-length B-heavy fur on each side. Two bristles are also used. Shuttle tensioning is a big problem because several types of fillings are run and center-fork and side-fork stop motions are both used. But the B-heavy fur properly tensions all types of filling in all types of looms.

Motors on all four types of looms operate on 550-v. current.

The weave room is equipped with an overhead beam-handling system designed so that a cleaning system can be added on the same tracks.

Several special features to improve cloth quality have been added to the looms. All looms have tape-selvage motions (except K-models where they're not needed with the dobbies). Temples have adjustable slides for accurate adjustments.

### Training—a Specialized Job

Training E-model loomfixers to fix on X-2 looms was begun three months before the new looms were received. An X-2 loom was set up in a training room, and each loomfixer whose looms were to be replaced was given a 60-hr. training course. One assistant overseer of weaving on each shift taught the loomfixers on his shift settings from the Draper Corp. manual.

Then when the X-2 looms were installed, each loomfixer helped the Draper erector start a section of looms and remained on the looms as the loomfixer. After the looms were installed, each loomfixer was given additional training by the assistant overseer for a 30-day period.

At the time the looms were installed, the weave room was not running on Saturday; and on Saturday mornings, the instructors and loomfixers worked on each loomfixer's own section checking settings.

Instructions are still being repeated when they are needed.

### Machines Are Kept Clean

To keep the machines clean and to keep cloth quality high, Cooleemee has a thoroughly organized cleaning system. Seven cleaning men are used on each of the three shifts. In addition to cleaning, the men also oil and grease the looms. The system is working out fine because better lubrication results now that men are responsible for both cleaning and lubrication.

The looms are divided into seven cleaning jobs of 142 looms each. Then each cleaner on each shift has 47 or 48 looms to clean and lubricate. All the building area where the jobs are located is also cleaned, with floors and the overhead area including atomizers, air- conditioning ducts, and atomizers being part of the cleaning work.

The itemized duties of the cleaners are:

1. Clean the looms when warps are out.
2. Grease and oil looms at warp-outs.
3. Oil and grease looms daily by the lubrication schedule layout.
4. Sweep the floor and handle waste.
5. Clean overhead pipes, atomizers, air-conditioning ducts, posts, windows, and walls.
6. Drag or blow waste from under looms.
7. Blow off drop wires on the entire job each day.
8. Blow off one-third of the looms completely each day.
9. Mop under looms by the schedule.
10. Fill the fire buckets.

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• The decreasing weight of the comb ball gradually reduces the ten-

comb tender who makes intelligent run-outs and set changes, who main-

weight decreases as the apron fluting becomes more pronounced to increase

# These Things Cause WORSTED-TOP Irregularity

**▶Worsted top makers are facing stricter demands from spinners every day. This outline will help you to check the points that might be causing irregularity. In addition, seven general rules for reducing irregularity are given.**

By **FRED ANDERSON,** Spinners Ltd. and Model Dye Works (Canada) Ltd.

THIS ARTICLE attempts to list all the factors that contribute to top irregularity. No attempt has been made to go into mathematical detail, but the ideas alone should enable any experienced top maker to reduce irregularity in keeping with the demands of shorter systems of worsted drawing and yarn manufacture.

## Short-Term Irregularity

Most short-term irregularity comes from the final operation of top finishing. Short-term irregularity cannot be ignored up to this last process; but such irregularity in earlier processes tends to become long term, with decreased amplitude, in finished-top form.

Most short-term irregularity can be traced to these ten points:

1. **Wave-fluted gill-box front rolls** (or tooth-and-pinion type) produce a characteristic short-term irregularity related to the pitch of the flutes. Poor apron condition can greatly magnify this fault.

2. **Out-of-true rolls,** either in themselves or through worn bearings, are a common cause of irregularity on pin drafters or gill reducers.

3. **Semi-intermittent motion** of one drafting element in relation to the other can arise from worn studs, bent shafts, worn gear-wheel bores, gears too large in bore for the shaft or stud, incorrect gear mesh, missing gear teeth, or slack chain drives.

4. **Fallers** can cause trouble in several ways: by being of different pinning in the same head, by being missing or choked, or by having split pins that don't penetrate the stock efficiently.

5. **Wrong back draft** leads to irregularly because the stock is out of control. Too-little draft causes piling up and an erratic flow of stock into the fallers on open gill boxes, intersecting gill boxes, and pin drafters or gill reducers. Zero back draft never gives good fiber control, contrary to the teachings of many theorists.

6. **Balling-head tension** not correctly adjusted is a well-known fault. New models have eliminated the short traverse cycle of earlier machines.

7. **False draft** between the calender rolls and front rolls of a can or coiler machine causes short-term irregularity.

8. **Feed aprons** on gill reducers and pin drafters have a knack for collecting waste that laps between the apron and the driving roll and causes fluctuating apron speed. Later machine models have a stationary steel plate instead of the apron.

9. **Excessive draft** is not a common cause of short-term irregularity, because the short front ratch of modern equipment provides excellent fiber control. Even Bradford or Continental intersecting gill boxes have gearing limitations that preclude excessive drafts. But on short wools the danger is still present, and the consequences are drastic.

10. **Underdrafting** is as serious as overdrafting, particularly in its sorting effect on blends of wool and staple synthetics.

11. **Operator faults** usually produce intermittent defects, but we shall mention some of them here.

• Slubs, or bumps in general, are caused by bad piecings, careless handling of balls or cans, waste on the machine or from the floor, or overflow of noil at the comb.

• Hard piecings made between the comb and coiler funnels are a frequent cause of trouble.

• A careless worker always produces bad work in combing, and quality-control checksheets are a good method of locating such workers.

## Long-Term Irregularity

For the sake of clarity, we are breaking long-term irregularity into four main subdivisions; but each division will inevitably encroach to some extent on the others.

### 1. Before combing

With either dyed tops or carded stock, backwashing and preparatory gilling provide enough doublings to give a fairly uniform sliver at the punch box. Any irregularities are assured of good distribution with 72 doublings at the Noble comb.

If you have hopper feeds with weigh pans at the card in good working order and about 19 ends at the backwasher, 4 at the first gilling, and 5 at the second, there is little chance for drastic long-term irregularity before combing. Careful piecing and ends-down stop motions combined with 380 doublings give a product that has almost as good a coefficient of variation as the final top. But the product of the Noble comb bears little relation to the feed, as far as irregularity is concerned.

### 2. At the comb

• The most drastic irregularity is the marked increase in sliver weight as the set runs out. A considerable length of feed from each ball should go into the comb with little or no drag from its own weight if waste is to be minimized. With a three-comb workload, it is inevitable that full balls will be running beside short lengths when a new set of balls of the same lot must be put in. With the feed knife down to maintain sufficient feed from the full balls, the ends running out pass over the circles at a feed rate greater than normal.

Until all new balls are feeding, therefore, a very variable comb end is produced.

• The decreasing weight of the comb ball gradually reduces the tension in the comb end and causes long-term irregularity. If not corrected, this irregularity could extend over 55 yds. or 400 lbs. of stock. Automatic feed knives correct this tendency to a great extent, but such knives are not used universally. To some mill men, the actuating peg of automatic knives presents a serious safety hazard.

• Sudden changes in weight of combed sliver are caused by frequent manual adjustment of the comb feed knife in an effort to regulate noil. In recombing, an adjustment to increase noil by 1% can increase the delivered weight of combed sliver by 60%. Conversely, squeezing all possible fiber into the top can reduce production out of all proportion to the reduction in noil.

• Other causes of long-term irregularity at the comb include:

a. The slight decrease in draft that occurs when a new apron is broken in.

b. Coiler-belt slippage, often caused by too-full cans that give a variable draft between the comb and the false-twist funnels of the coiler.

c. Comb circles in bad shape.

d. Dabbing brushes in bad shape or poorly adjusted.

e. Creel ratchet-and-pawl mechanisms out of balance or worn to cause incomplete actuation of the ratchets.

f. Inner creel rolls sticking from waste or bad adjustment.

g. Feed boxes unequally adjusted.

h. Aprons run past the point of perforation.

i. Mechanisms producing intermittent movement of one drafting element in relation to another. (This fault is particularly noticeable if rack pinion, intermediates, or change gears are worn in teeth or bore. A bad setting of the large-circle rack pinions can produce an intermittent motion clearly visible to any observer.)

j. Not balancing the main comb settings that are duplicated: height of the two feed inclines, drawing-off rolls to the circles, etc.

Any number of combs on the same lot should be set the same; but this ideal is seldom met, because no two machines have identical characteristics.

• The comb operator plays a big part in controlling irregularity. A comb tender who makes intelligent run-outs and set changes, who maintains a full complement of feed ends, and who cooperates with the shift foreman or fixer to keep his machine in tiptop condition is a great asset in keeping irregularity down. It is only good sense to back him up with well-made punch balls and feed ends with as near equal yardage as possible, particularly for small lots.

**3. At the first finisher**

The following observations were made on Bradford-type intersecting gill boxes. Idiosyncrasies of pin drafters and gill reducers are covered under the next major heading.

• Ends down at the feed produce irregularity in direct proportion to their percentage of the total feed.

• Full cans give a heavier feed than nearly empty ones. This condition applies even with the best of creels but can be greatly minimized with spring-bottomed cans.

• Uneven conditioning, if applied at this operation, usually shows up in gradually decreasing sliver weight that jumps back to normal when the conditioning device is fixed.

• Piecing a heavy end to a light one, or vice versa, of course affects irregularity.

• Running a set out without proper attention to the correct number of ends right to the end causes irregularity.

• On can-delivery machines, the cans themselves should be carefully balanced, or subsequent full-can balancing is practically worthless.

• On balling-head machines, tension must be adjusted very carefully. Otherwise, the increase in ball weight increases drag and can cause up to 10% difference in weight of sliver from the inside to the outside of the ball. Too little tension can have the opposite effect, however, a phenomenon for which there appears to be no logical explanation.

• Wrong weighings of cans or balls of course produce a change in sliver weight at the second finisher.

• Some irregularity comes from the inevitable difference in characteristics between heads of a double-head machine.

• Changing of gill-box aprons is a well-known cause of changes in draft, sliver weight, and balling-head tension. The draft gear, balling-head-drive gears, and knock-off gears should be changed; and then follows a breaking-in period during which sliver weight decreases as the apron fluting becomes more pronounced to increase draft and reduce balling-head tension. Only then should the change back to normal be made.

• Too much difference between ball or can weights in a balanced set can badly affect top weight. Fluted front rolls controlled by a knock-off based on revolutions deliver more yards of thinner sliver; so lighter units of a second-finisher set don't run out until considerably after heavier ends. The greater this disparity, the longer it is possible to piece a thin end to a thick one, or vice versa.

• Interference with pressure applied at the front rolls of the first finisher affects sliver weight. The lighter the pressure, the heavier the end. This tendency can be partly and irregularly offset by an increase in tension between the front rolls and calender rolls or balling head.

**4. At the second finisher** (pin drafter or gill reducer)

• Ball-creel speeds must be regulated to apply minimum tension to feed ends when balls are at their maximum diameter. As the ball gets smaller, a gradual overfeed develops. Tight tension at the start produces a steady rise in sliver weight at the delivery until the overfeed has eliminated tension altogether or reduced considerably.

With a can feed, the opposite condition applies. As the can empties, feed tension increases and top weight decreases.

• Ball-creel rolls must be carefully balanced in diameter. Drastic differences in tension between one feed end and another soon develop, even with very minute differences in creel-roll diameters.

• Stop-motion failure allows a 16⅔% or 20% reduction in top sliver weight, depending on whether five or six ends are being run.

• Irregularity from creeling in a new set has been mentioned already. Such irregularity is difficult to minimize. Running out each set before creeling the next set would reduce the length but not the frequency of the irregularity. With six ends up, the operator who pieces on an end of the new set that is 12% lighter than the end running will produce a 2% reduction in top- sliver weight. This error won't be corrected until the heavier end of his balanced set is in place. With three light and three heavy ends in a set, it is possible to raise or lower

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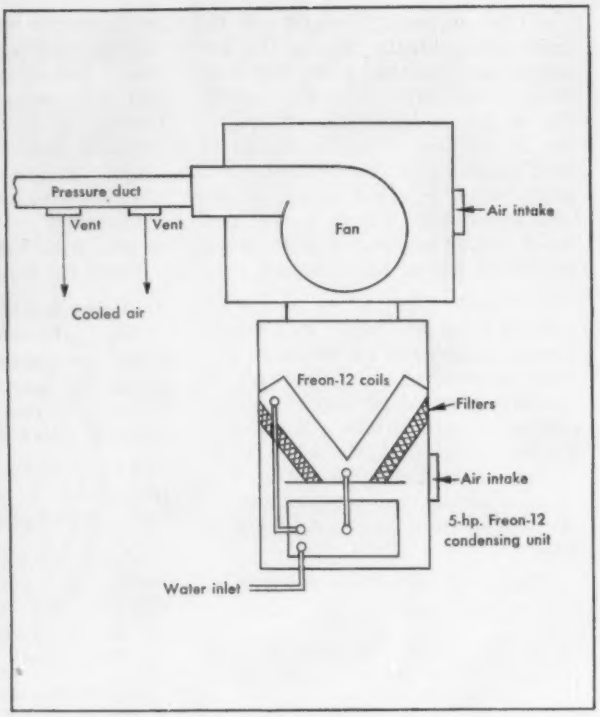
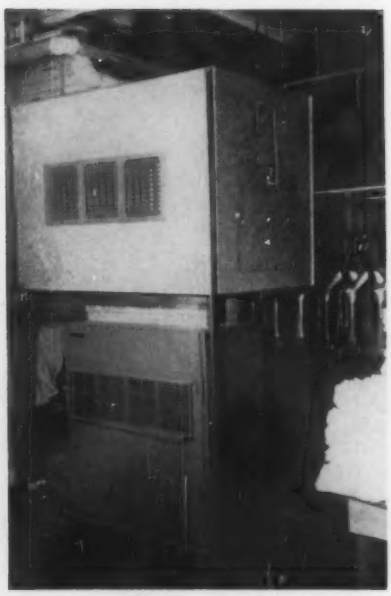
VENTS in the duct over the center of each boarder's alley can be controlled individually so that the hosiery boarders can get the temperature they want.




THE TOP UNIT houses a fan to supply air at a temperature of 65 to 75° F. over the tables. A vent in the top air intake is opened during normal weather conditions.

# *Cooling Unit Boosts Hosiery* BOARDERS' PRODUCTION



AIR-COOLING UNIT takes up little space at the end of the line of boarding tables.

**▶At Cobble-Muse Hosiery Mills, a spot-cooling system consisting of a refrigerator unit at the end of the boarding table line and a duct that runs over the boarding tables improved worker comfort and helped increase boarding production**

**By JAMES H. BLORE**
**Associate Editor, TEXTILE WORLD**

WORKER COMFORT at Cobble-Muse Hosiery Mills, Chattanooga, Tenn., is treated with high regard. A cooling unit over the hosiery-boarding tables to improve worker comfort resulted in increased production during hot weather. An average boarding production of 150 doz. per worker each 8-hr. shift has been maintained during 90° F. weather.

Cobble-Muse is making two-fold combed-cotton ankle socks in sizes from 3s to 11s. To save time changing forms too frequently, more tables and forms are installed than are actually necessary.

## Air-Cooling Equipment Takes Up Little Space

The Paramount boarding equipment has built-in air-cooling units, and these units are augmented by a York air-conditioner unit. The air conditioner uses a five-ton refrigerator unit, which takes up little space at the end of the boarding section.

A 5-hp. Freon-12 condensing unit supplies the cooling coils over the air filters. Domestic water is supplied to the Freon unit for condensing purposes. Air is drawn from the room, through the filters, and over the cooling coils by a large fan built over the refrigeration unit.

The fan blows the cooled air into a pressure duct suspended over the

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PLANT MAINTENANCE—a Chance To Save Money

Textile World
JANUARY, 1954

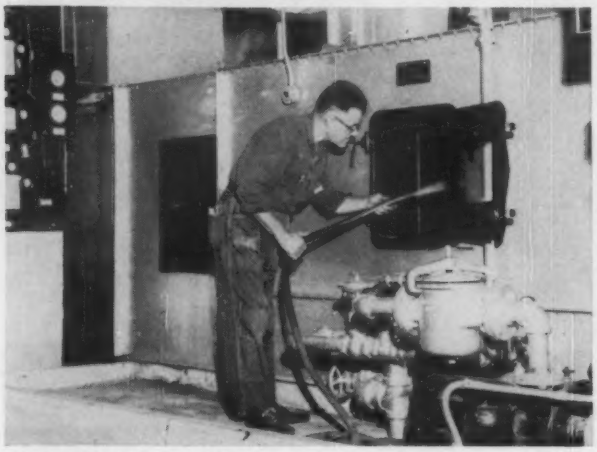
# PLANT MAINTENANCE--

## A Chance To Save Money

▶ Today, with high labor costs and astonishing productivity per machine per hour, the best way of all to save money is to prevent breakdowns and minimize loss of production time. That, primarily, is the purpose of maintenance and the job of maintenance departments.

In this special mill-maintenance section, we present some practices and techniques that can help maintenance departments do a better job on--

- Air conditioning
- Lighting
- Electrical systems
- Motors
- Power plants
- Roofs



CENTRAL WATER CHAMBER is hosed out and cleaned weekly. The system is stopped, and the access door is opened. Chlorine added to the refill water prevents slime or algae.

RECIRCULATED-AIR FILTER SCREEN is cleaned weekly with a portable vacuum cleaner. The work has been made part of the duties of a buildings-service-department employee.

# How Albany Felt Maintains AIR-CONDITIONING Equipment

**To keep its air-conditioning equipment in constant working condition, Albany Felt Co. has developed a maintenance program for—**

- **Daily inspections of working parts by specialists**
- **Checking and service by outside service companies at regular intervals**
- **Routine inspections and services as indicated by a filing system**

By **GEORGE A. ESTABROOK,** Chief Engineer, Albany Felt Co.

TWO TYPES OF MAINTENANCE can be used for air-conditioning equipment: one is a simple, well-planned preventive-maintenance program; the other is emergency maintenance, which is required when there is a breakdown of the air-conditioning equipment. Emergency maintenance is often very costly, and temporary unsatisfactory atmospheric conditions in the manufacturing departments cannot be prevented. We use, basically, the preventive type.

### Maintenance Engineer Is Responsible

Albany Felt delegates the responsibility for maintenance, cleaning, and operation of all air-conditioning and humidification systems to the maintenance engineer, a key member in the plant-engineering department. This maintenance is divided into three classes: inspections, work done by our own employees, and maintenance service obtained from the outside.

Trained personnel from the maintenance department check all the air-conditioning systems daily. The best time for this inspection, we have found, is during the first part of the morning.

The complexity of our systems requires specialists to make these inspections. A member of the pipe-shop department checks all automatic controls and regulators. From the indicating instruments or recording charts, he can determine if a particular air-conditioning system is producing the required temperature and humidity.

An electrical-department employee checks motors, controls, and starters once a week for proper operation.

### Results Are Reported

After an inspection, the maintenance men report the results to the maintenance engineer; and any required maintenance is done immediately. These simple inspections permit any fault to be corrected immediately or reported to the production supervisors or production manager if it is serious. In this way, corrections are made before the manufacturing processes are affected.

The mechanical equipment is lubricated by an oiler who is a member of the maintenance department. A filing system serves as a reminder for proper lubrication on a monthly basis.

Experience has shown that it is more economical and more satisfactory to have filters serviced by a local organization. Through a filing system, arrangements are made to have a filter-equipment representative check and clean all filters every two months. The service costs between $15 and $19 per inspection, or less than $10 per month.



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DUCT INTERIORS are cleaned during the vacation-period shutdown. After the louvers are removed, the duct interiors are cleaned with a portable vacuum cleaner by trained employees.

MOTORS, FANS, AND BEARINGS are cleaned every six months by a regular oiler in the maintenance department. A check is made daily on the operation of these units.

### Dealer Checks Refrigeration

Every April, a service man from a local dealer charges all the refrigeration units with gas. He is responsible to the maintenance engineer for checking the condition of all operating parts, including refrigeration mechanisms and pumps that are so vital for operation during the coming summer months.

The first of each month, from May to October, the service organization checks the operation of the mechanical and electrical equipment of the refrigeration units. During November, the same service representative shuts off the refrigeration units, drains the Freon or other refrigeration gas, and prepares the equipment for the winter shutdown period.

The specially trained representative can quickly detect anything wrong with the machinery. This service costs us approximately $100 per year per refrigeration unit.

The maintenance engineer is also responsible for making plans and preparations for cleaning, overhauling, painting, and repairing all air-conditioning systems. This work has to be scheduled during the vacation-period shutdown. The preventive mainteance can then be done without interfering with operations in the manufacturing departments.

A valuable aid to a preventive-maintenance program is the helpful information supplied by the manufacturers of air-conditioning-equipment parts. The manufacturers have prepared operating and maintenance manuals that describe proper methods of cleaning and maintaining controls, atomizers, water sprays, filters, lubricating pumps, fans, and other moving parts.

| NOVEMBER 1 |
|---|
| Charge to Bldgs. Dept. 80 Assign to Vic Wachter |
| Issue order to Westover-Wolfe Company to pump down and prepare for winter shutdown, the refrigeration units in: |
| Building No. 1, First floor |
| Building No. 2A, First floor |
| Building No. 8, Basement |
| Building No. 9, First floor |
| Building No. 9, Fourth floor |
| |

FILE CARDS, filed by date, give necessary details for getting a specific maintenance job done.

### How Albany Maintains Central-Station Systems

At Albany, a preventive-maintenance program for the central-station air-conditioning system is controlled by a filing system in the plant-engineering-department office. Daily routine inspections and checks of the operation of air-conditioning equipment are performed without consulting the filing system. However, the date specified on the file cards indicates the time to do the weekly, monthly, or yearly maintenance work.

When a particular date coincides with the date on a file card, the clerk in the engineering department notifies the maintenance engineer responsible for the preventive-maintenance job. His instructions are contained on the file card.

An essential part of maintenance for a sizable central-station air-conditioning system is a daily check of the temperature and humidity controls. This check allows any trouble with the delicate control apparatus to be corrected before the effects reach processing departments. This factor is highly important at Albany Felt, where weight and quality of materials are critical. Twice a week, the filters at the control panels are cleaned to prevent an accumulation of dust or rust particles that may affect the operation of the controls.

### Water Chamber Is Cleaned

The central water chamber is hosed out and cleaned once a week. The system is shut down, the water-circulating pump is stopped, and the access door on the side of the sheet-metal enclosure is opened. To allow any sediment in the bottom to be flushed away, the drain valve from the water chamber is opened. A half tablespoonful of chlorine added to the refill water prevents the accumulation of any slime

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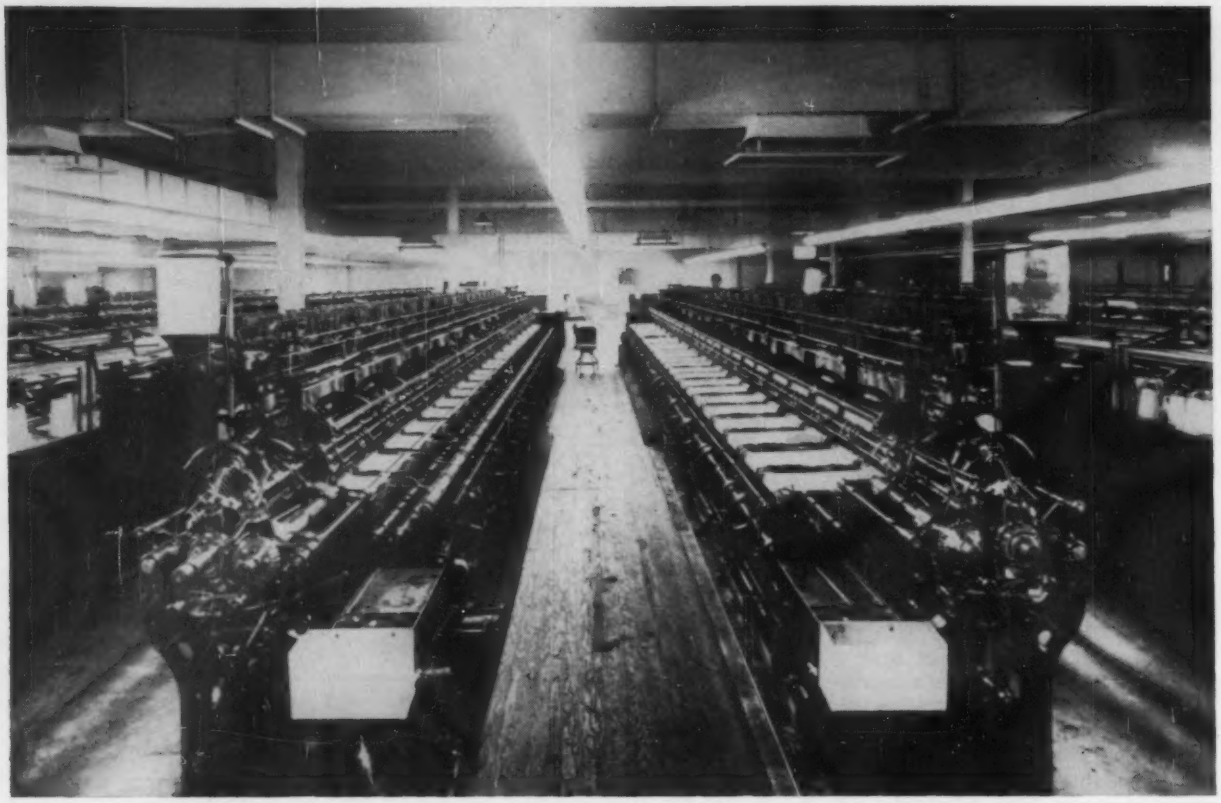


THE KNITTING DEPARTMENT, practically columnless, is well lighted by continuous rows of double-reflector fluorescent-light fixtures between each row of knitting machines. The reflectors are cleaned every 60 days with Glass Wax, and the lamps are replaced every six months.

# LIGHTING MAINTENANCE Boosted Quality at This Mill

**Wisteria Hosiery Mills has developed a lighting-maintenance program for maintaining high-level illumination necessary for work on precision, long-section knitting machines. Features of the program include—**

- **Systematic fluorescent-lamp replacement**
- **Regular cleaning of fixtures, ceilings, and walls**
- **Light-meter checks at work levels to assure maximum lighting**

By **SAM BOYER,** Wisteria Hosiery Mills, Inc.

A MAINTENANCE PROGRAM for a modern lighting system at Wisteria Hosiery Mills, Inc., Gastonia, N. C., is designed for maintaining the peak of high-level illumination necessary for work on precision, long-section knitting machines.

The plant is divided into several departments, all adequately lighted by fixtures specially adapted to the individual processes. The departments include the knitting department, seaming and gray inspection, and boarding and preboarding.

The lighting-maintenance program at Wisteria is under the direction of the plant engineer, who acts as supervisor of maintenance.

## One Man Is Responsible

The supervisor is responsible for keeping on hand adequate stocks of fluorescent lamps and starters, incandescent lamps, lamp holders, starter sockets, and transformers for immediate service on any defective unit. During his daily routine check of all



PLANT MAINTENANCE—a Chance To Save Money

plant services, the supervisor checks all lighting equipment. That the check prevents decreased lighting efficiency is proved by departmental statistics showing big returns in better quality-hosiery production.

Four watchmen who alternate on three 8-hr. shifts help the maintenance supervisor in their spare time. These men are trained to work near knitting and other types of machinery without causing any damage when they clean light reflectors or replace lamps and starters. It takes about 9 mins. to properly clean a two-lamp 48-in. reflector and lamps. The cost of Glass Wax is only ½¢ for each fixture, with better results than could be obtained by using regular detergents.

### Knitting-Room Lighting

The knitting department, practically columnless, is well lighted by continuous rows of double-reflector Day-Brite No. 0-18216 fluorescent-light fixtures between each row of knitting machines. The installation contains approximately 300 units mounted 7 ft. above floor level and 14 ft. on centers. Each unit has two 40-w. Daylight lamps and double, concentrating-type aluminum reflectors that are polished to a mirror-like brightness by the Alzak aluminum-finishing process applied by the manufacturer.

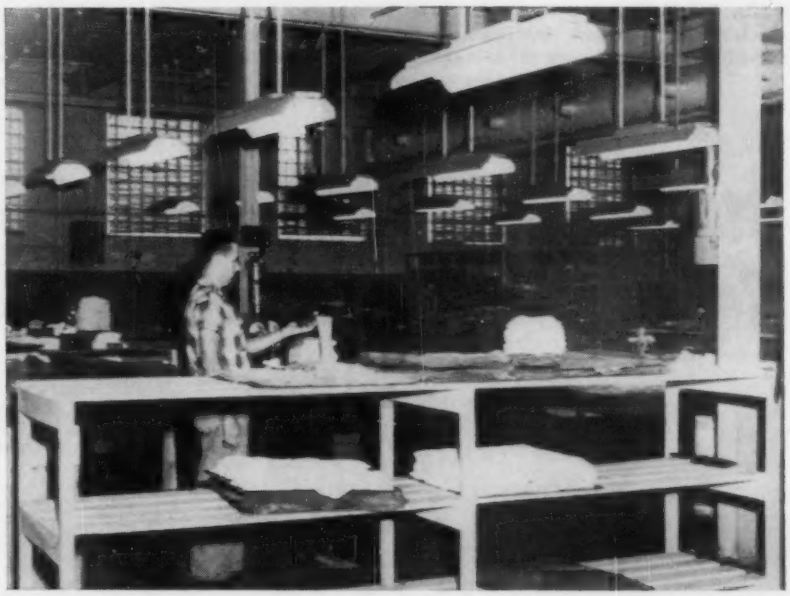
The light intensity for the knitters at working-level is 65 ft.-c., and this high level of illumination is maintained by cleaning the reflectors every 60 days with Glass Wax and by replacing the Daylight lamps every 10 months. Tube replacement is figured on a basis of 4,800 hrs. of useful life; however, if the replaced tubes still show 60% efficiency, they are used for replacement in storage and walkway areas where high lighting intensity is not required. We have found that this system cuts lamp replacement costs approximately 50% without altering lighting efficiency.

### Vermiculite Ceiling Reflects Light

Adequate lighting, often impossible in some plants because of dirty or poorly painted walls and ceilings, is enhanced in Wisteria's knitting department by a 2-in. Vermiculite ceiling suspended 3 ft. below the roof structure. The ceiling also conceals all pipes and serves as insulation and acoustical equipment, and it is painted a pastel shade of green that prevents eye fatigue. The walls are painted a harmonizing color; and ceiling, walls, and doors are repainted when necessary to eliminate shadows.

Reflectors are positioned to concentrate the light on the knitting-machine heads, where the greatest amount of precision work is performed. Lights were originally mounted 8 ft. high, but light-meter tests showed that an extra 10 ft.-c. could be obtained by lowering fixtures to 7 ft.

**THE SEAMING DEPARTMENT is equipped with approximately 90 units of Day-Brite fluorescent fixtures for directly lighting the machines. For precision work, the machines are furnished with 100 ft.-c. at working level. Systematic lamp replacement is required every two years.**



**A LIGHT METER is used to check lighting intensity. This check is a great aid in determining the time for lamp replacement and fixture cleaning. The inspection department of the finishing room, shown in this picture, is equipped with Silv-A-King fluorescent fixtures.**

### Seaming Machines Receive 100 Ft.-c.

The seaming and inspection department is equipped with approximately 90 units of Day-Brite fluorescent fixtures with two 40-w. Daylight lamps for lighting the machines directly, while 60 RLM 150-w. incandescent units are used for lighting the aisles.

The highly skilled seaming-machine operators require abundant light for their precision work. Approximately 100 ft-c. are furnished on the sewing mechanism of the machines by the Day-Brite fixtures. Some novel hosiery styles require additional light for deli-

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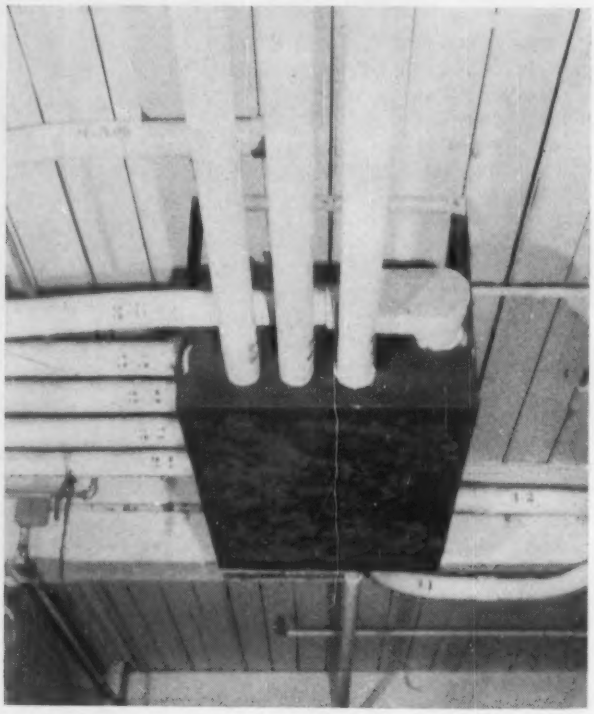
LOCATING ELECTRICAL TROUBLES is easy because each feeder at the substation is marked. Here Electrician Mevin Watson attaches a ground-detector-signal generator to a substation bus to start tracing a fault between the substation and the opening room.



BRANCH FEEDERS run in several directions from this junction box on the building ceiling near the substation applying power to a mill section. Lines are marked going into and out of the junction box. The markings will continue to the end of the feeder.

# Marked ELECTRICAL EQUIPMENT Can Reduce Downtime

**Trouble at any electric unit in this mill containing 700,000 sq. ft. of manufacturing space is as easy to find as a street address. Results are—**

- **Trouble is reported easily**
- **Electricians know they are safe**
- **Grounds are located quickly**

**By J. DAN McCONNELL,** Plant Engineer, Cone Mills Corp.

A SIMPLE BUT EFFECTIVE marking system helps the maintenance electricians when electrical trouble causes a shutdown at Cone Mills' White Oak Plant, Greensboro, N. C. The identification system has been completed in the entire mill, which contains 77,832 spindles, 3,152 looms, and over 700,000 sq. ft. of manufacturing space.

The identity and location markings are simple and complete. Each column in the mill and each pilaster along the outside walls carries a letter and number. The letter designates the column line, and the number designates the bay.

In laying out these markings, the northwest corner of a building is taken as Location A-1. The outside west wall is Line A, the next row of columns on the east is Line B, and so on. The north wall is Bay 1, and the first line of columns is Bay 2. This numbering is put on first in the basement so that only columns in the basement have to be laid out. Main columns that go through to the roof carry the same number on each floor of the mill.

## It's Easy as a Street Address

This method serves to locate any column in the mill just as a street address and house number locates any

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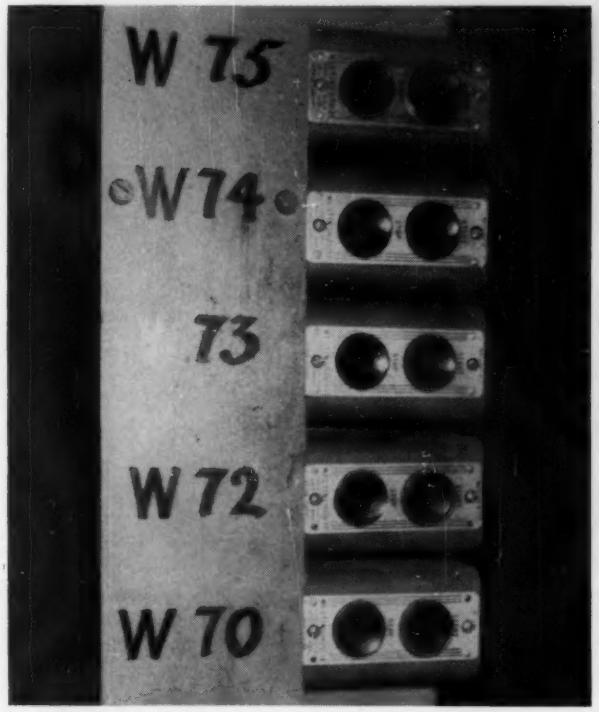
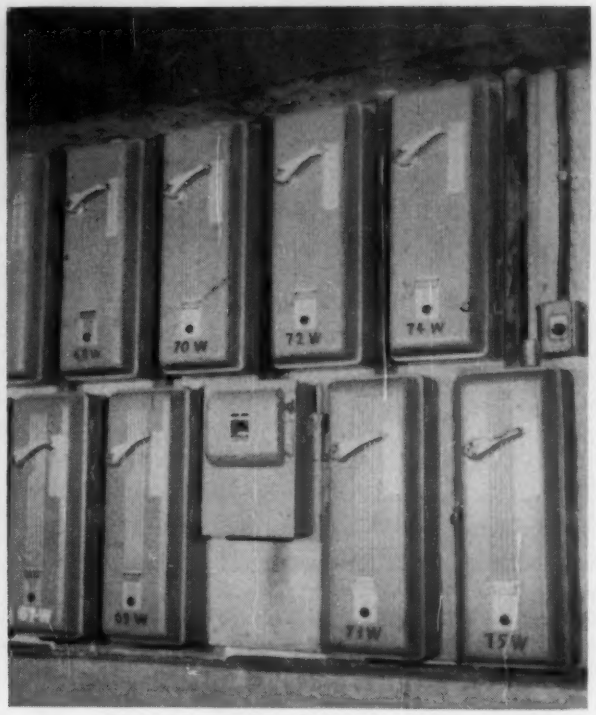
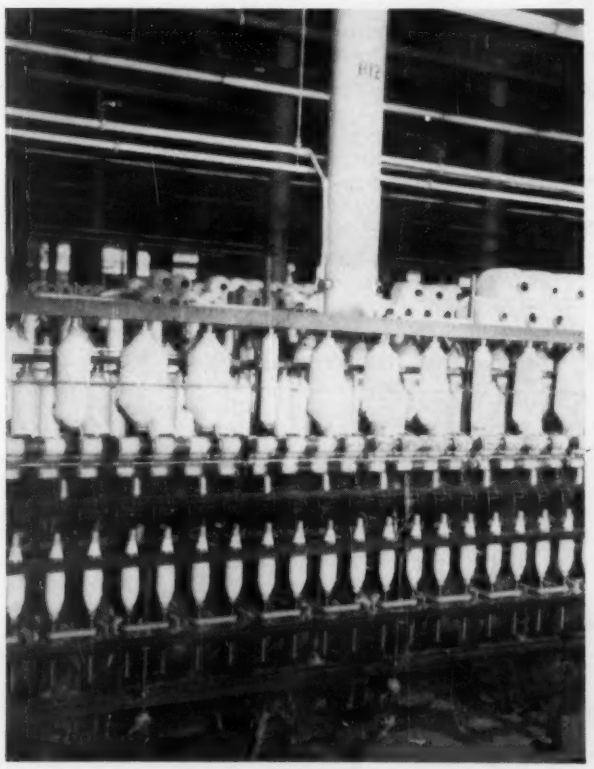
PLANT MAINTENANCE—a Chance To Save Money



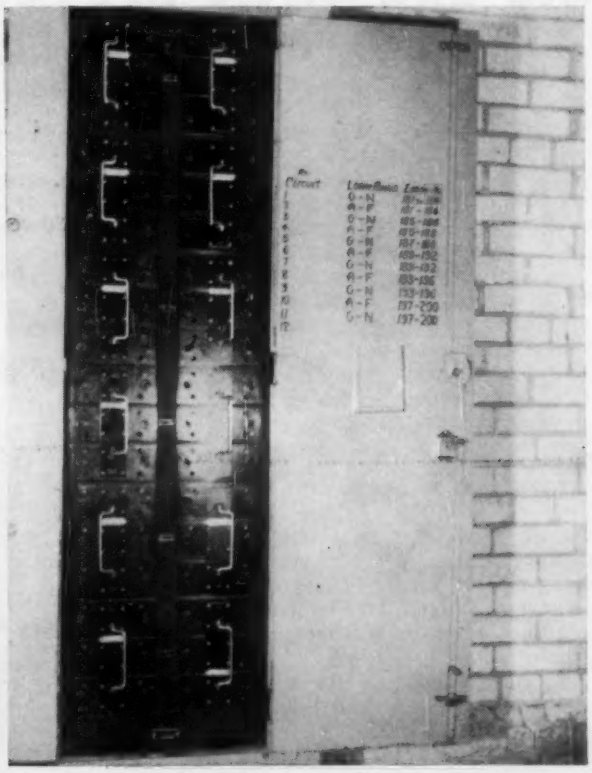

TRACING CIRCUITS in the opening room consists of checking power lines from these start-stop push buttons for individual drives on opener-blenders to switches located on the wall nearby. The W and numbers at the push buttons identify the machine and switch.




LOCATING SWITCHES in the opening room is easy because the numbers appearing at the starters are identical to the numbers on the switches serving them. Grounds on the wiring between the two points can be determined with the ground-detecting system.



PINPOINTING TROUBLES in the spinning department requires less effort than in most other departments. Markings on columns designate only four spinning frames, and fewer switches are needed. As a result, costly lost production from shutdowns is reduced.



SECTION FUSES in the weave room furnish power to only four looms each. Each circuit shows the numbers of the looms served, the position of the looms by rows and alleys, and the circuit number. The low number of looms served by one circuit also reduces shutdowns.



quired for electric motors is small.

PERIODIC CHECKING of motor speed, both idle and full-load speed, is necessary for continued trouble-free performance.

CORRECT INSTALLATION of each motor eliminates breakdowns. The pinion and key should fit and be fastened securely.

PROPER LUBRICATION by a trained man pays off in motor operation and also in oil-free yarn and cloth.

# How To Maintain Big and Little MOTORS

**For best electric-motor performance—**

- **Install motors correctly**
- **Have competent electricians check them**
- **Don't overload the motors**
- **Lubricate them properly**

**By WILMER C. WESTBROOK,** Consulting Editor, TEXTILE WORLD

THE NUMBER AND VARIETY of electric motors in the modern textile plant are amazing. In the average weaving mill, there are about 4,000 motors with a total horsepower of approximately 5,000. These motors range in size from a 1/25-hp. tying-in-machine motor to 150-hp. air-compressor motors.

Between these two extremes are such motors as ½-, ¾-, and 1-hp. loom motors, 3- to 5-hp. drawing-frame motors, and 7½- to 15-hp. spinning-frame motors.

Most textile motors are the high-voltage, three-phase, 60-cycle, a.c. type; but some of the smaller motors are wired to 110-v. lines supplying power to the mill lighting system. There are also some special-purpose motors such as variable-speed drives and synchronized drives supplied by d.c. generators.

## Install Motors Right

A textile motor correctly installed will operate several years with little attention other than occasional lubrication. Even the lubrication chore is eliminated on the motors with grease-sealed bearings. However, like anything mechanical, a motor eventually wears enough to require attention. An electric motor is so complex that it requires specialized treatment; and for this reason, motor maintenance is usually the responsibility of electricians rather than fixers or section men.

An inexperienced employee should not be permitted to tinker with a motor because he will damage it and also may be electrocuted. Many transmission lines carry up to 550 v.; and with the high relative humidity required for some mill processes, the floor is often wet enough to furnish a good ground. Under these conditions, even a 110-v. shock can prove fatal.

When compared with most textile mechanisms, the attention re-

quired for electric motors is small. About the only preventive maintenance necessary is regular lubrication and periodic check-ups with an ammeter and tachometer to see that electricity consumption and motor speed are normal.

### Use the Proper Fuse

Two of the most-common troubles encountered in the maintenance of electric motors are the continued blowing of fuses and the burning out of circuit-breaker heaters. One of the causes of this trouble is inadequate voltage. When the voltage drops, the number of amperes used is increased and the motor overheats. In addition to blowing the fuse, low voltage can cause serious damage to the motor by breaking down the insulation.

A heavier fuse is sometimes used to stop blown fuses, but this practice is a dangerous one. The fuse is a safety device; and if it is too heavy, it is useless. For a 15-amp. motor, no fuse heavier than 60 amps. should be used.

When it is being started, a motor requires two or three times as much electricity as it does when it has attained peak running speed. If a motor is overloaded, it may not reach this peak and will continue to draw more amperes than are normally replaced; a hot motor is the result. This condition is much like that of an automobile being driven up a long steep hill in low gear.

### Use the Right-Size Motor

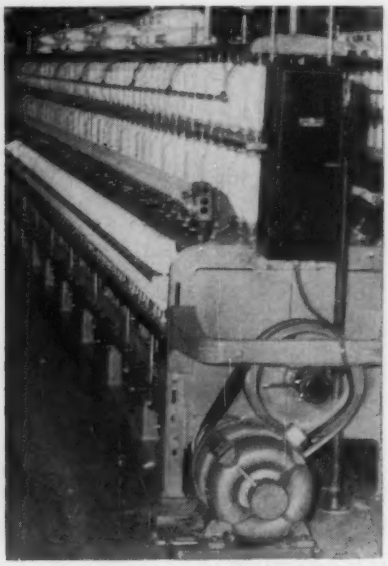
Motor overloading can also result from using a motor of inadequate horsepower. For instance, a ½-hp. motor is usually strong enough to drive a plain loom. But accessories such as a filling feeler, Stafford thread cutter, auxiliary camshaft, and tape-selvage motions are added when heavy drills and twills are woven. Then the load is greatly increased, and the ½-hp. motor is inadequate.

Under these conditions, overloading occurs during the transfer of the filling when a momentary strain is placed on the entire loom. The results of a condition such as this are constant repairs and rewiring, constant replacement of fuses or circuit breakers, and below-normal loom speeds.

Other things that overload a motor are shafts or bearings out of alignment, machine parts that bind and cause a drag on the motor, gears not correctly meshed, a clutch not adjusted properly, and a too-tight or slipping clutch or belt.

The first step in checking a damaged motor is to check the machine being driven. If an overheated motor is replaced without first correcting the cause, the second motor may also be damaged and more machine downtime will result.

**EXPERT REPAIRING by competent electricians and machinists keeps production machines running at high efficiency.**



**THIS 15-HP. spinning-frame motor with variable-speed drive is typical of the newer textile motors.**

### Electricians Must Know a Lot

When special-purpose motors, such as Diehl power transmitters for looms and multimotor slasher drives, are used, the maintenance mechanic must have a basic knowledge of electronics in addition to mechanical knowledge. These mechanisms are very efficient; but since the efficiency comes from their sensitive controls, they require more attention than ordinary motors.

Spare motors should be kept on hand to prevent downtime of machinery when a motor fails or when major motor repairs or overhauling are required. At least one extra motor of every type used should be available for replacement purposes. The savings from downtime of machinery when extra motors are available will more than pay for their expense even when an electric shop is equipped to rewind and rebuild motors.

One of the most-frequent sources of trouble from motors geared to machines is a loose motor pinion or crooked motor-pinion shaft. These troubles come from too-large keys driven on tapered shafts or from pinions that don't fit the shaft; and they result in overheating motors, wearing of the shaft and bearings, and damage to transmission gears.

For best operation, the key should fit the keyway snugly and neither the key or the pinion should be too far on the shaft. The pinion should be securely fastened to the shaft with a lock washer and nut or a self-locking nut.

Periodic checks should be made to see that all electric motors have correct grounds. Defective ground wires cause many machine, material, and employee injuries.

### Lubrication Requires Skill

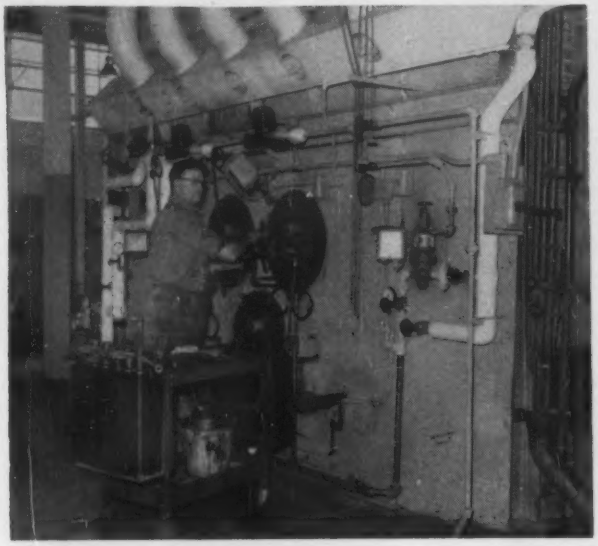
The frequency of lubricating motors depends on the motor itself, local conditions such as the schedule of operation, condition of the bearings and shafts, the oil viscosity, etc. The newer motors with lint-free, fully enclosed housings and sealed bearings will operate for years without lubrication.

A lubrication schedule should be made for each type of motor. For instance, due to excessive vibration and continuous full-load operation, looms require lubrication almost twice as often as spinning-frame motors.

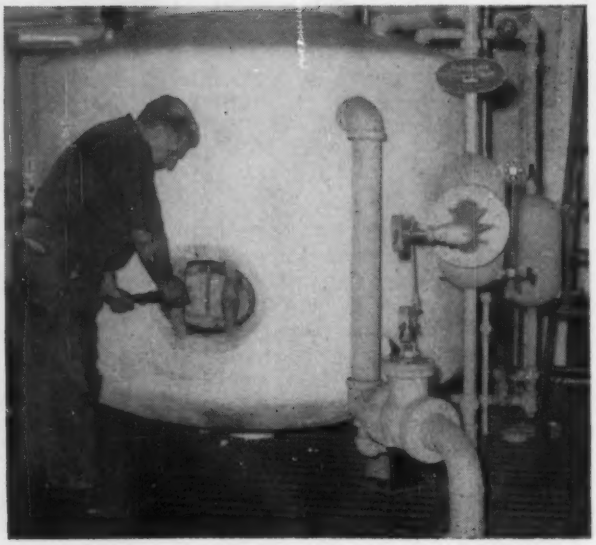
The lubrication needs often vary between identical motors and, in such cases, the schedule should be set up for the motors requiring the most-frequent lubrication.

Too little lubricant often results in a burned-out bearing or a fire that causes material damage and lost production. But don't use too much lubricant. Surplus oil often seeps through a floor and damages yarn or cloth on the floor below.

The selection of a person to lubricate motors is very important. For best results, the oiler should be capable of doing a good job without close supervision.



FUEL-OIL GUNS for firing the boilers are changed every 8 hrs. Truck (foreground) holds clean guns in compartment at left.



MANHOLE of feed-water deaerating heater is opened for inspection. Ample working space provides easy accessibility to the equipment.

# Teamwork at Ellis Mills Sparks POWER Maintenance

**At its modern power plant, A. D. Ellis Mills has narrowed the gap between inspection and maintenance. Inspection routines are scientifically planned and are executed by well-trained men. Maintenance features include—**

- **Use of outside help for routine checks**
- **Equipment layout for easy inspection and repair**
- **Constant watch for abnormal conditions**

**By H. S. KNOWLTON,** McGraw-Hill Boston Bureau

At its 1,280-kw. fuel-burning generating plant, A. D. Ellis Mills, Monson, Mass., is following the trend toward narrowing the gap between inspection and maintenance.

The power-generating plant at A. D. Ellis has the following equipment:

Two oil-fired three-drum boilers, each with a continuous steam capacity of 35,000 lbs. per hr. at 250 psi.-ga. and 500° F. Each boiler burns Bunker C oil fired by three guns and has completely water-walled furnaces. Coal-burning equipment can be installed later if required.

Two steam turbine-driven generating units, one 800 kw., the other 200 kw.

Two Diesel-driven generating units, one 220 kw., the other 60 kw.

The powerhouse, a new installation, contains new, modern equipment. The building closer to the powerhouse is supplied with 600-v., three-phase current. Another building, about ¼ mile distant, is supplied by a 2,400-v. circuit through three outdoor 250-kva. transformers at each end of the line energized from the power plant. The power plant has an emergency lighting connection from an outside source.

### Equipment Layout Facilitates Maintenance

Inspection and maintenance are greatly facilitated by the open and yet compact arrangement of equipment. There are no walls between boilers, major auxiliaries, and generating units to interfere with servicing. Lighting units above the equipment provide direct illumination of parts requiring inspection. The important pumping units are within a few feet of the boilers. Floors are vacuum-cleaned every two days to eliminate dust.

The power-plant staff consists of nine men: the chief engineer, three operating engineers, and five firemen. This number is sufficient to meet relief requirements during week ends and emergencies. The staff works three shifts per day, with two operators per shift.

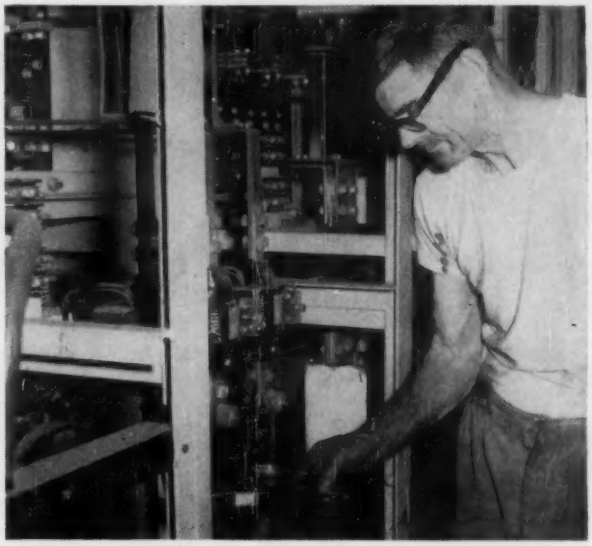
The mechanical department of the mill operates a repair shop that is available to the power plant under direction of the mill's master me-





MODERN ROOFS Demand

PISTON of a diesel-engine unit is replaced by Chief Engineer A. Stromski and Kenneth Grindell.



CLAMP-ON AMMETER is used for testing current flow in a routine inspection on a switchboard cable.

chanic. Electrical repairs generally are made by the mill electrician unless their complexity requires assistance from equipment manufacturers' specialists.

### Insurance Company Makes Annual Inspection

The engineering department of a large insurance company is retained for the major annual inspection of boilers, turbines, and electric generators. Manufacturers' representatives also cooperate with inspection of diesel and other units. The power-plant staff dismantles and restores equipment during these inspections and cooperates with all outside personnel.

The times for inspections are well established. However, intermediate action is taken when abnormal conditions are noted in equipment in operation or even in standby service. Plant personnel is always watchful of instrument readings, the sounds of rotating and reciprocating equipment, temperatures and pressures, flow-meter indicators, ampere and voltage readings, meter records, and general conditions.

At a shift change, responsibilities are accepted by incoming personnel after a check of the log sheets and equipment. Plant policy leaves no room for trouble, with the staff eliminating all subnormal conditions within its control.

### Boiler Safety Valves Tested Every Shift

On every shift, the boiler-blowdown and safety valves are opened for a short test. Fuel-oil guns are changed every 8 hrs. Diffusers in the boiler registers are cleaned weekly, and air lines in boiler controls are checked weekly for accumulation of deposits and soot. Every six months, burners are reconditioned and fire boxes sprayed with fire clay. Firemen check feed water daily for alkalinity and solids.

Boiler-water conditioning prevents formation of tube scale. Boilers are shut down and opened up annually for inspection by the insurance-company engineer. The boiler interior is completely examined by the representative with assistance from the power-plant engineer. They look especially for signs of leakage and overheating. Twice a year the boilers are washed out, the burner cone blocks reconditioned, and headers checked for accumulation of deposits.

### Turbines Checked Annually

Turbines are opened annually for complete examination by a team of manufacturer's representatives and insurance men. They inspect shaft alignment, blading, bearing wear, thrust-bearing clearance, space between fixed and rotating blades, appearance of couplings, state of lubrication-oil systems, and atmospheric relief valves. Turbine valves are inspected as often as routine operation requires. Beeswax is used for guide lubrication instead of kerosene and graphite since it prevents oil carbonization and resultant sticking of valves.

Inspection of turbines also reveals the amount of deposits on blades and points out the rows most affected. It permits analysis of the deposits to determine means of reducing or eliminating them. Internal parts are examined for indications of mechanical stress, erosion of blading, and accumulation of dirt or rust in the oiling system. Steam strainers are examined for carry-over deposits.

Weekly inspections of certain turbine parts are made without dismantling. These parts include couplings, lubrication-oil filters, and atmospheric relief valves between turbine and condenser.

### Turbine Condenser Checked Every Six Months

The turbine condenser of the 800-kw. unit is opened every six months and checked for leaks and deposits. Unless induced-draft fans are heard to run roughly, they are cleaned every six months. Plant operators clean and grease fans and pumps, and these are also included in the annual insurance inspection.

In routine turbine operation, hourly readings of the following important items are recorded on the daily log sheet: throttle pressure, first-stage pressure for the 800-kw. unit, extraction pressure, bearing- and governor-oil pressures, and steam integration. Changes in these values may vary with load conditions; but if they are abnormal, the causes may require immediate action, an essential part of preventive maintenance.

### Records Are Kept

Turbine oil-cooler indications include incoming- and outgoing-water temperatures, as well as incoming- and

CONTINUED ON PAGE 190

PLANT MAINTENANCE—a Chance To Save Money

# MODERN ROOFS Demand Frequent Inspection and Repairs

► Most modern roofs are insulated because air conditioning is being used extensively. These roofs give rise to a situation where "a stitch in time saves nine."

By W. T. WATSON, Plant Engineer, Judson Mills

ROOFS ARE SUBJECTED to more punishment than any other part of a building. They are attacked on the outside by all types of weather, wet and dry, hot and cold. At the same time, heat, water, vapor, cooling, and condensation are trying to break them down on the inside.

For these reasons, modern roof design should be given more attention than it formerly received. Each year this fact is brought more forcibly to the attention of the building engineer. And to make roof maintenance more complicated, cost-conscious management often builds roofs with the advice of inexperienced architects.

## Modern Roofs Have Four Parts

To maintain a roof properly, a thorough knowledge of its construction is necessary. The main features of the modern roof are the deck, vapor barriers, insulation, and roof. The types of roof decks used in modern buildings are concrete, metal, precast plank, gravel plank, and wood. The decks are 2 to 3 ins. thick.

From the decks upward, most roofs are constructed the same way. Usually a vapor barrier or seal is added to the deck. The seal is covered with a built-up roof with or without tar or pitch and gravel. When insulation is used, the construction methods differ.

There are four principal ways to apply insulation to roofs:

1. Above the deck
2. Within the deck
3. Under the deck
4. On the ceiling below a vented space

The most-common method of insulating industrial roofs is to place the insulation above the deck. To construct this type of roof, the roof deck is installed so that it has no loose boards, no holes, and no protruding edges. The possibility of vibration is also eliminated. The vapor barrier or seal is then applied. The insulation is put on next and is covered with a built-up roof or a tar-and-gravel or pitch-and-gravel roof.

## Vapor Barrier Is Critical

A good vapor barrier correctly installed with the proper insulation is very important on this type of roof. If the vapor barrier is part of the roof or just below the roof, vapor will penetrate to the roofing, condense to water, saturate the insulation and deck, and eventually drip.

Even when the vapor barrier is installed correctly (just above the roof), the insulation may be inadequate and the vapor will reach the seal, condense to water, saturate the deck, and drip into the building. This dripping is often mistaken for roof leaks.

When condensate drips, corrective measures should be taken at once, particularly if the deck is made of wood. To correct this condition, the existing roofing must be torn off and replaced with a proper vapor barrier and adequate insulation. Another method is to add insulation and a vapor barrier below the deck. Both of these methods are costly, but one of them has to be used to save the wood deck and assure a dry building.

Insulated roofs are becoming common because of air-conditioning installations, and it's more important than ever to maintain the roofs properly. When a roof over insulation has to be replaced, the cost is great and the insulation is generally damaged. For these reasons, roofs should be inspected at regular intervals, and this inspection should be made by someone who knows where to look for possible trouble. The inspections should be made every three months and should be spaced so that they're made just after the change of seasons.

## Five Causes of Roofing Failures

Some of the most critical trouble spots on insulated roofs are:

**1. Flashings.** Flashings break loose often. If they were originally sealed by mortar in the joints, they can generally be repaired with a mastic compound. If a wooden strip was used to hold the flashing and the strip is rotten, the strip will have to be replaced so that the seal and flashing can be fastened to it.

On some roofs, the roll roofing, felt, or paper is laid flush with the parapet wall and a tin flashing is dropped down over the roofing. This tin flashing should be raised and the roofing examined. If the roofing has shrunk away from the parapet wall, the crack should be sealed with a good sealing compound.

**2. Coping joints.** Coping-tile joints on parapet walls crack frequently and allow water to seep through the wall and follow the roof decking or beams into the building. These joints should be resealed.

**3. Gutters and down-spouts.** Excess water sometimes collects on roofs when gutters and down-spouts are stopped up. The water overflows, runs down the building walls, damages the masonry, and erodes the landscape. Down-spouts often come loose from gutters and damage the landscape. A heavy application of roof coating inside leaky gutters makes them watertight.

**4. Roofing.** Roll roofing, composition, felt, paper, and tar-and-gravel roofs start drying out as soon as they are finished. The life-giving oils gradually evaporate until the roof powders and becomes soft or dead. A dried-out roof should be mopped immediately with a compound to prolong its life.

Roofs should be mopped with a commercial compound periodically. The frequency of mopping depends on the type of roof itself and the climate. For best results, roofs should be mopped as often as every two years and should not go more than 10 years without being mopped.

Bulges on insulated roofs do not mean that the roofs are bad, but steps should be taken to eliminate them. If the insulation traps air, the air expands when it's heated by the sun, and internal pressure results; if

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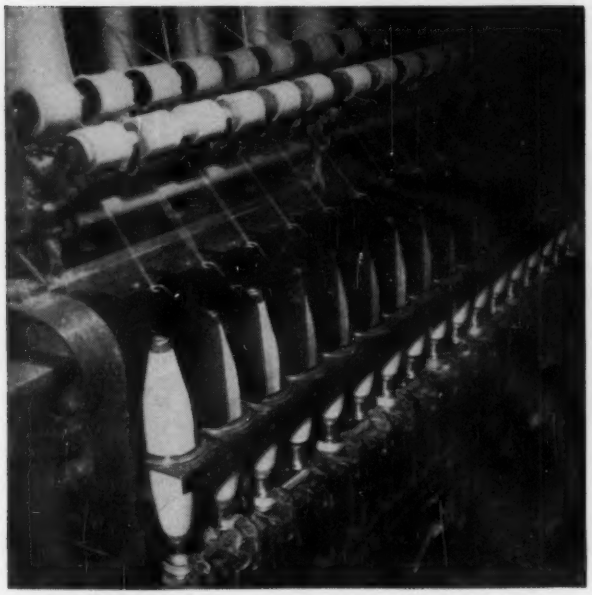
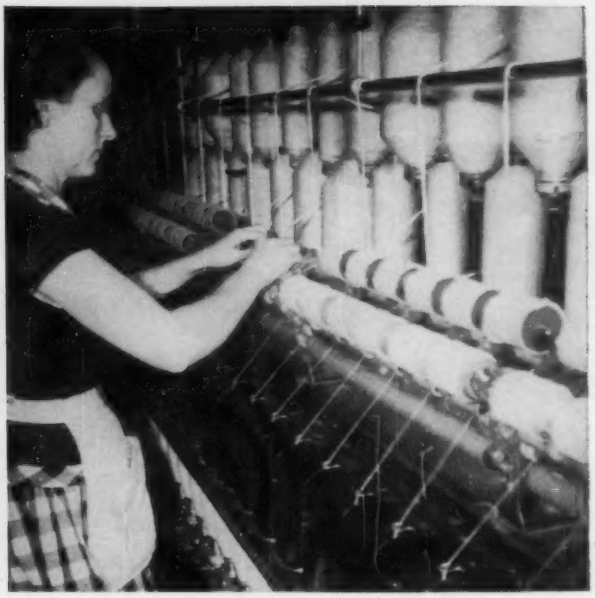


LARGE PACKAGES hold up to 0.865 lbs. of 12s filling yarn. Doffing time is about 7½ hrs.



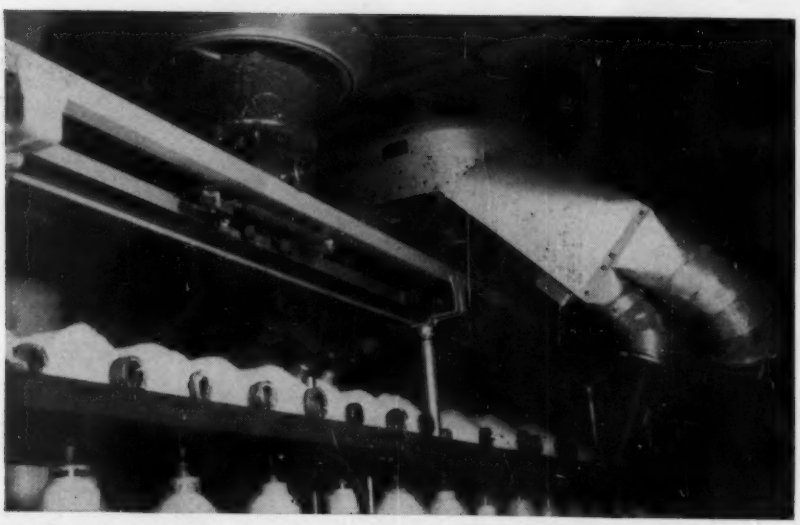
ROLL CLEANING is done on three frames during each shift. Roll pickers are used once each week.

# Large-Package SPINNING Settles Down to Production

Large-package spinning frames have increased:

- Yarn-on-bobbin weight to 0.865 lbs.
- Spinners' work assignments to eight sides

By **JAMES H. BLORE,** Associate Editor, TEXTILE WORLD



FRAME CLEANER is fixed to ceiling cleaner and moves back and forth over three frames.

As a part of a modernization program at Beaumont Div., Spartan Mills, Spartanburg, S. C., 10 Whitin large-package spinning frames were installed two years ago. These frames have increased doffing time, bobbin weights, and spinners' work assignments. Here's how the frames are running:

Each frame has 264 spindles. The frames are 4-in. gauge with 3-in. rings and 12-in. stroke. The yarn is spun from 0.6-hk. roving into 12s filling yarn. Paper tubes carry the yarn, and each tube holds 0.843 to 0.865 lbs. of yarn.

### One Bobbin Runs 7½ Hrs.

The spindle speed is 8,500 rpm., and the running time for one bobbin between doffing is about 7½ hrs. Ends

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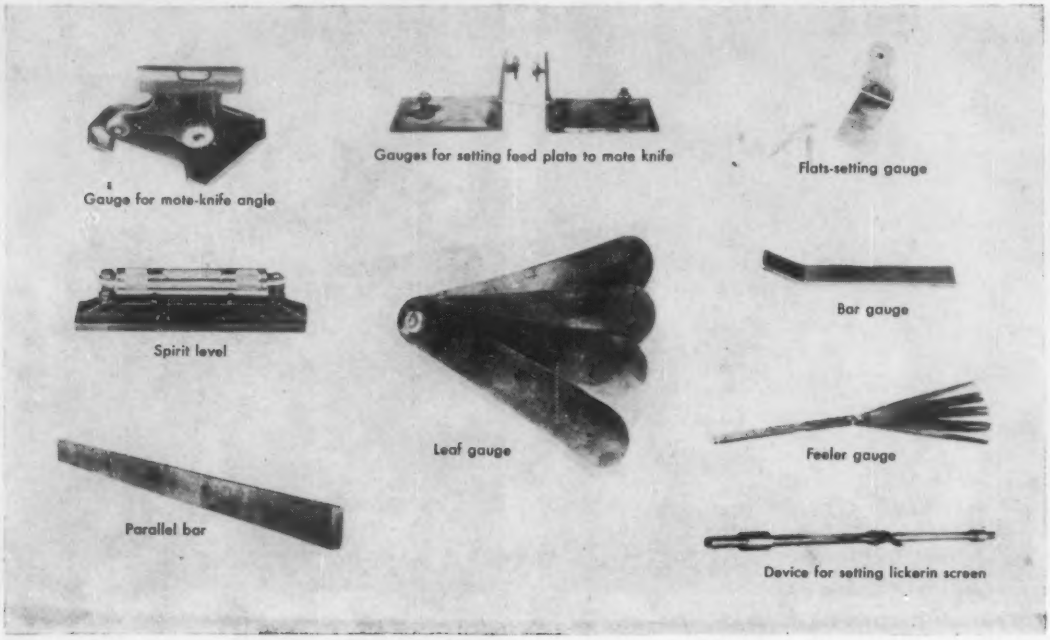



GAUGES needed by the card grinder for use in setting a card. In most mills, the grinder will need two or three leaf gauges and at least a 0.007-in. and a 0.010-in. flats-setting gauge.

TOOLS should include a set of open-end wrenches ranging from ¼ in. to 1⅛ ins.; one or two crank-type wrenches for flats screws; a flats-chain crank; a hammer, preferably with a plastic head; screwdrivers; and a steel rule.

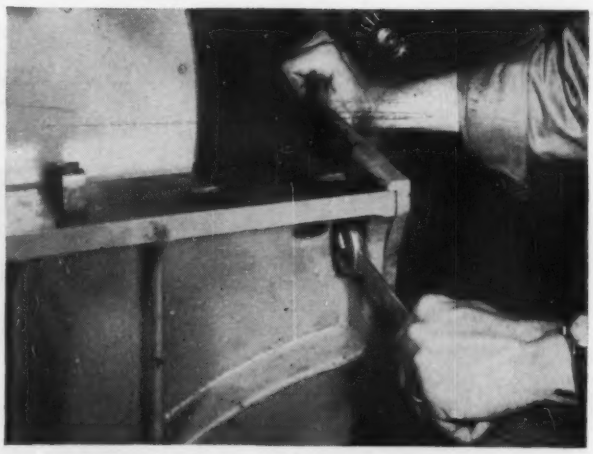
# *Card-Grinder Training—*
# *HOW TO SET CARDS*

▶ Card grinding is recognized as one of the most important jobs in a cotton mill. A good grinder can make an important contribution to good work, and a poor one can cause not only bad work and loss of production time but also a lot of expensive machine and clothing damage.

▶ Pictures and captions presented on these pages should be useful to card-room overseers when they have to train card grinders in how to set cards. This article, the first of a series, covers—

- Gauges and tools needed
- Dismantling the card
- Leveling the card frame
- Checking frame clearance

By P. C. KOCHHAR, Industrial Rayon Corp.



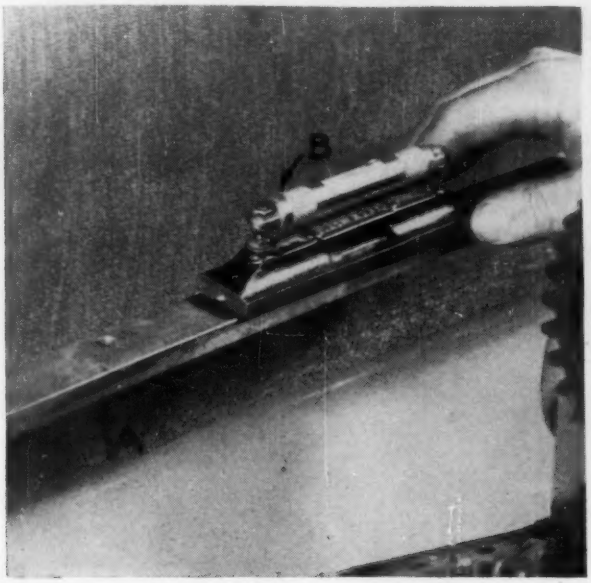
## DISMANTLE THE CARD . . .

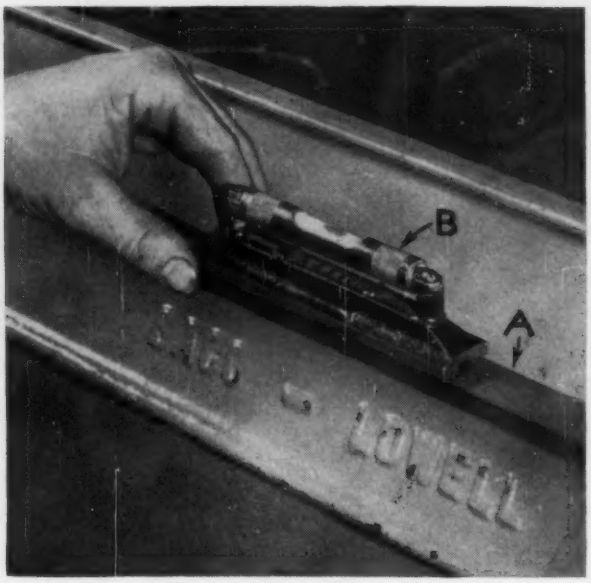
. . . including the feed-plate assembly, lickerin, mote knives, lickerin screen, cylinder screens, back plate, front plates, doffer comb, cylinder and doffer pulleys, and side shaft. Loosen the bolts that fasten the calender-roll assembly to the frame of the card.

Clean the calender-roll assembly and the face of the card frame where the assembly is bolted to the frame.



How To Set Cards (Continued)




## CHECK SIDE-TO-SIDE LEVELNESS . . .

. . . with parallel bar *A* and spirit level *B*. As shown in the picture to the left, the parallel bar is placed across the front of the card between the doffer and the calender rolls. At right, levelness is checked at the back of the card with parallel bar *A* resting on the side plates of the card frame. The plates and bar must be clean.

If the card is not level, the low side should be raised with shims placed under the frame.

## CHECK END-TO-END LEVELNESS . . .

. . . without the parallel bar by placing the spirit level at two or three points along the side plate of the card frame. Both sides should be checked. Now and then, particularly when the cards are on a sagging floor, so many shims have been used under a card that it is better to take shims out from under the high side rather than try to build up the low side.

## CHECK THE CLEARANCE . . .

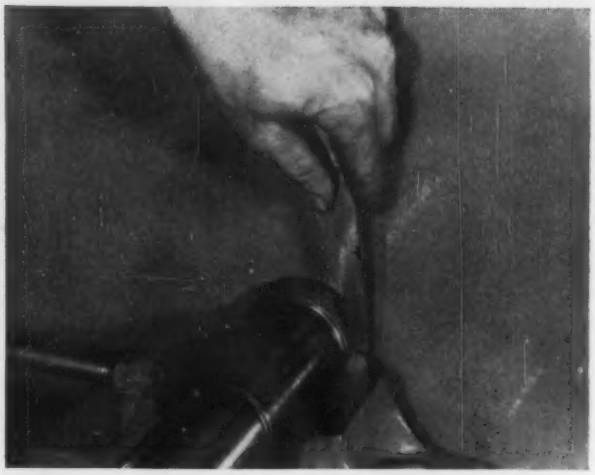
. . . between the cylinder shaft and the top of the cylinder-shaft bearing with a narrow leaf gauge. Insert the gauge beyond the center of the bearing.

If the clearance is more than 0.005 in., the bearing should be replaced.

→

## CHECK THE CLEARANCE . . .

. . . between the inside edge of the cylinder-shaft bearing and the shoulder of the cylinder shaft. If the clearance is more than 0.005 in., loosen the bearing-cap bolts and push the bearing in toward the cylinder. If it is less than 0.005 in., push the bearing away from the cylinder.



## CHECK THE CLEARANCE . . .

. . . between the edge of the doffer-shaft bearing and the shaft shoulder, as shown here. Also check the clearance between the shaft and the top of the bearing, as was done for the cylinder, shown in an earlier picture. Clearance at both points should not exceed 0.005 in.

## CHECK THE CLEARANCE . . .

. . . between the edge of the cylinder and the cylinder arch at the front, as shown here, and the back of the card. If the clearance is uniformly less on one side than the other, loosen the cylinder bearings and bump the cylinder shaft on the tight side to move the cylinder over. It will then be necessary to recheck the clearance between the bearings and the shaft shoulders.

If clearance is uneven at different points on the same side, the trouble usually is that the arch has been warped by the card being out of line, perhaps as a result of an uneven floor. To correct the uneven cylinder-to-arch clearance, insert or remove shims as was done to level the card. A compromise has to be made between leveling the frame and squaring the cylinder.

## CHECK THE CLEARANCE . . .

. . . between the doffer edge and the inside edge of the card frame. If the clearance is not even at the two sides, loosen the doffer bearings and push the doffer away from the tight side. You will then have to recheck the clearance between the doffer bearings and the doffer-shaft shoulders and probably move the bearings to obtain the desired 0.005-in. clearance.

**Color Test Results**

(Color values are for 10% beaker dyeings on cyanoethylated cotton containing 3.5% nitrogen. Samples were dyed for 45 mins. at 140° F. in a vat dyebath containing 1 oz. per gal. each of caustic and hydro.)

| Dye | Color value of dyeings | |
|---|---|---|
| | Untreated cotton | Cyanoethylated cotton |
| Calcoloid Pink FFD, Double Powder | 100 | 190* |
| Calcoloid Blue BLD, Double Powder | 100 | 150 |
| Calcoloid Yellow GCD, Double Powder | 100 | 125 |
| Calcosol Gray 2G, Double Paste | 100 | 130 |
| Calcosol Navy Blue Paste | 100 | 145 |

* Pronounced difference in shade.

# How Vat Dyes Work With CYANOETHYLATED COTTON

- **Less dye is required for a given shade**
- **The fiber is more heat resistant**
- **It resists rotting to a considerable degree**
- **Laboratory work done so far points the way to production methods**

THE DYEING CHARACTERISTICS of cyanoethylated cotton are different from the parent fiber in many ways. Not only does this modified fiber take color more readily, but it is also receptive to classes of dyes usually unworkable on cotton. Early studies with seven dyes showed that about 40% less dyestuff is required to produce a given depth of shade on cyanoethylated cotton than is necessary for untreated cotton.

The degree of cyanoethylation may be varied, but it has been established that modification to a nitrogen content of 3.5% is sufficient to give an improved fiber of considerable promise.

## How It Behaves With Vat Dyes

Vat dyes were chosen for further study because they have the best all-around fastness characteristics and were thus more suitable for application to an improved fiber.

In all laboratory work so far, the treated cotton absorbed the vat dyes more rapidly and exhausted them more completely. In most cases, the shade was the same; in some, the treated cotton dyed a brighter shade.

Because cyanoethylated cotton absorbs dyes rapidly, there is a marked tendency toward poor penetration of yarns or fabrics. Examination of individual fibers shows good penetration in the dyed areas, however. Attempts to slow down the rate of absorption with retarding or leveling agents showed some improvement in penetration if large amounts were used, but color value was reduced.

Pigment-pad methods give much better penetration, since the pigmented dye is well dispersed throughout the fabric or yarn before reduction with caustic and hydrosulfite. The use of sodium lignin sulfonate as a retarding agent improved penetration significantly.

## Cyanoethyl Groups Are Stable

The cyanoethyl groups are introduced into the cellulose in the presence of dilute caustic soda as a catalyst, but strong caustic solutions at higher temperatures will remove cyanoethyl groups from treated cotton. The vat-dyeing process employs caustic soda, and for that reason a series of tests was run to determine the nitrogen loss in the dyeing process. As an example, treated cotton was immersed for 1 hr. at 140° F. in a vat dyebath containing 1 oz. per gal. each of caustic and hydro. The nitrogen loss on four samples of varying degrees of cyanoethylation was approximately 0.5% in all cases.

Other experiments with varying amounts of caustic up to 2 oz. per gal. and temperature variations up to 200° F. showed consistent loss of nitrogen, with the loss increasing with the amount of caustic, the time, and the temperature. The presence of dye or hydrosulfite did not affect the results. Nitrogen loss was more rapid at elevated temperatures and increased with the amount of caustic present.

The conclusions drawn from these tests are that cyanoethylated cotton can be dyed with vat dyes by controlling caustic and temperature. No large-scale dyeings have been attempted to date because of lack of material. Actual mill trials, based on laboratory methods, will be required before detailed production methods can be worked out.

*Data from American Cyanamid Co.*

# 2 Ways To IMPROVE SLASHING

**Men from 22 Georgia mills pooled their ideas on slashing, and the results show—**

- **What's being done with new equipment available**
- **How to use present equipment better**

**The Textile Operating Executives of Georgia met at Georgia Tech on Oct. 23 for their annual fall meeting. Slashing was discussed at the first session of the meeting; overwaxing sized warps sparked the exchange of ideas.**

## Use NEW EQUIPMENT for Better Warps

FIVE MILLS GAVE detailed data on their experiences with hot-wax applications to sized warps. An increase of 0.8% in weave-room production was noted at one mill. Another mill reported loom stops per hour attributable to sizing trouble were reduced from 0.504 to 0.298 when wax was added to the warps.

### Size Formulas Aren't Changed For Overwaxing Warps

Detailed reports on overwaxing by mills are:

**Mill A**—"The wax applicator is placed between the guide roll and the first split rod at the slasher.

"We have used both the so-called cheap wax and the expensive wax and do not find any difference in our results from either type of wax. We use the same size formula used before we started using wax.

"The wax is applied at 200° F. at ½ to 1% by weight. We have difficulty in keeping the wax at a constant temperature, and we have also had trouble with the pipe stopping up between the wax container and the roller trough.

"The diameter of our applicator roll is 4 ins., and it turns at 2 to 3 ft. per min.

"Direct results of the added wax are: (1) Some of the harshness is taken out of the warp to make the yarn smoother and more pliable and flexible; (2) it also lubricates the heddles, reed, and shuttle; and (3) weave-room efficiency is higher."

**Mill B**—"Our wax applicator is at the front of the slasher just back of the first split rod. The lowest-priced wax proved to be better than expensive waxes at our mill. There's no variation in our size formula when warps are overwaxed.

"Wax is kept at 180° F., and we vary the roller speed to get the right wax pickup.

"Since we started overwaxing, our seconds have decreased 1.5% and our production has increased 0.8%. Other advantages are: (1) less shedding at the loom, (2) desize tests show 1.3% more size and wax on the warp yarn after the cloth is woven, and (3) we also have a decrease of 29% in warp breaks per loom hour."

### Loom Stops Are Reduced

**Mill C**—"Our overwaxing roll is between the measuring roll and the big split rod.

"We don't have any experience with cheaper waxes, and we use our standard size formula. We hold the wax at 180° F. and add 0.4% wax by yarn weight to the slashed yarn.

"A recent test showed that stops from sizing trouble were reduced from 0.504 per loom hour to 0.298 when warps are overwaxed. This test was performed on 60x48 cloth with 14s warp and 11s filling. We are still in the experimental stage in overwaxing."

**Mill D**—"We run our wax applicator roll before the split rod and use our standard size formula. The results of overwaxing are not conclusive because we're still in the experimental stage."

**Mill E**—"We have been applying hot wax to dried warps at the front of the slasher between the back measuring roll and the lease rods for several months.

"We have changed our warp formula to prevent piling up of top beams on terry warps. Cheap waxes haven't worked out satisfactorily for us. When they're used, warps shed more in weaving; and they also have an offensive odor when the cloth is finished on a calender.

"We keep the wax at 180° F. and add approximately 0.01% wax to the slashed warps. The roller makes about 1 rpm., and the speed depends on the speed of the slasher.

"We have experimented with wax on flat-woven goods a little, but most of our experience has been on terry towels. On this material, we have fewer broken warp ends in weaving and better weave-room efficiency. There is less shedding and end breakage at the slasher."

### New Roll Coverings Look Good

Nine mills are using synthetic-rubber-covered rolls. Five mills use this type of covering on both the back rolls and finishing rolls. One mill has been using the covering on both front and back rolls for five years and has never had to buff a roll.

The other four mills reporting use the rubber-covered rolls only on the

CONTINUED ON PAGE 214

TURNER R. SCOTT, general chairman, directed the sessions on slashing, maintenance, and weaving.

• These officers were elected at the meeting of the Textile Operating executives of Georgia:

*General Chairman*
**E. Allen Bentley**
Columbus, Ga.

*Vice General Chairman*
**Alex Fife**
Scottdale, Ga.

*Secretary and Treasurer*
**Herman A. Dickert**
Atlanta, Ga.

*Executive Committeeman*
**Clyde Cobb**
Trion, Ga.

*Executive Committeeman*
**George Malone**
Atlanta, Ga.

ALEX FIFE called on representatives from 22 mills to get their advice and ideas on slashing problems.

# Use BETTER METHODS With Present Equipment

MOST MILLS REPORTING have reached approximately the same conclusions on the proper way to prepare and store size for best weaving results, and 16 mills have set up standard formulas and size-making procedures.

The outstanding report came from a mill using a pressure of 3,500 psi. to homogenize size. With this pressure, the mill obtains the same results from pearl starch that it had been getting from thin-boiling starch.

Three average mill reports give these procedures in preparing size:

**Mill A**—"We fill the cooking kettle to the 300-gal. mark with water, thin-boiling starch, and size compound and bring the solution to a boil in 30 mins. The temperature is held at 212° F. for 1 hr. Then we pump the size to the storage kettle and hold it at 200° F.

"The size is continuously circulated through the slasher and storage kettle. An automatic size-level control is used on the size box. The size is used at 200° F.

"We have 10 slashers, and we test the size pickup on one slasher each week. This check is made by weighing the actual pounds of solids picked up by the warp. Sometimes we desize a warp to determine the size content.

"Some of our squeeze rolls are yarn-wound and some are blanket-covered. All squeeze rolls are self-weighted. The size pickup can be increased by increasing the amount of wool yarn used to cover the squeeze rolls. Greater size pickup also results from covering the rolls more often."

## Homogenize at 3,500 Psi.

**Mill B**—"We use pearl starch. To prepare the size, we draw the water to the cooking kettle, add the starch, bring this mixture to a boil, and add the other compounds. The formula is boiled for 30 mins. and homogenized at 3,500 psi. The size is pumped to a storage kettle and held at 200° F.

"We use the loop-type distribution system. An automatic size-box control draws size from the loop as it is needed.

"Our back and front squeeze rolls are yarn-wound. The front roll is rewound every 12 hrs. Approximately 700 psi. dead weight is used on the front roll and 600 psi. on the back roll. Warps are desized monthly to check for size content."

**Mill C**—"Our size is prepared by mixing 75 gals. of cold water, 40 lbs. of thin-boiling starch, and 2 qts. of liquid compound. We bring the mixture to a boil in 30 mins., and cook it for 1 hr. at 210° F. The cooked size is stored in a kettle at 190° F. The size-box temperature is also 190° F.

"We use blanket-covered finishing rolls and synthetic-rubber-covered back rolls. Pressure on the finishing roll is 490 psi. and 550 psi. on the back roll.

"We make tests for size content."

## How Mills Creel Selvage Ends

Mills were about evenly divided in their methods of creeling ply-yarn selvage ends at the slasher. Eight mills run the ply yarn from creels added to the slasher, and seven mills creel the yarn directly from one section beam. In every case of section-beam creeling, the selvage yarns are run from only one beam, either the front or back beam. Methods of creeling by mills are:

**Mill A**—"Ply-yarn selvages are run from a creel suspended from a track directly behind the slasher over the slasher creel. The yarn is on cones. The selvage ends are not sized.

"This is the best method we've ever tried. Selvage yarns are 4½/2 to 30/2, and warp yarns are 4½s to 30s."

**Mill B**—"Ply yarns for selvages are run from cones on a creel in front of the slasher. The ends are run through an extra piece of comb attached to the back of the regular comb and are placed one end per dent in the comb. On regular expansion combs, we pick only half as many ply-yarn ends per dent as single-yarn ends to prevent piling up at the selvages. We find that running only one end per dent prevents rolling of yarn and results in better-running warps.

"This setup is used on plain weaves running with tape selvages. The woven cloth is 38x37 construction from 16s warp and 10/2 selvage yarns."

**Mill C**—"The selvage is creeled from the front section beam. The selvage ends run under the immersion roll and through both squeeze rolls.

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RECLAMATION WORK started as soon as the water drained off, with

# How Wamsutta Struck Back

**▶ Prompt management action, plus teamwork from employees and suppliers, put this mill back into full three-shift operation less than 36 hrs. after the lower areas were flooded to depths of 5 and 6 ft.**

**By EDWARD S. RUDNICK**
Director of Research
Wamsutta Mills

At noon on Tuesday, August 31, 1954, Hurricane Carol hit New Bedford, Mass., with almost no warning. Many mills in the area were severely damaged.

This is the story of how Wamsutta was back in full operation less than 36 hrs. after the waters receded.

The big damage was from the salt water of the Acushnet River, usually one-quarter of a mile from the mill. The mill yard was flooded with 4 ft. of sea water, sewage, and muck. The first floors of all buildings were flooded to depths of 5 and 6 ft.—and this area included the opening room, powerhouse, personnel office, laboratory, small stores, shipping room, and waste house.

Before the waters had even receded, men of the mechanical department were rescuing whatever tools they could; some men even swam for them. All power tools and instruments were knocked out, but they would have been almost useless in the first few hours anyway because the whole area was without power.

Tuesday evening, after the water went down, the clean-up started. Within a few hours, temporary power lines were strung and lights were installed in vital areas for the all-night tasks ahead.

management, workers, and neighboring industries pitching in. That's—

# After Hurricane Carol

Joseph Axelrod, Wamsutta president, arrived from New York a few hours after Carol had done her damage. He called an emergency meeting of all supervisors, got detailed damage reports, and assigned priorities to the repair work. The production departments got top priority, service departments second priority, and buildings and yard third priority.

Mr. Axelrod, Roy Coffee (newly appointed production coordinator of this division of M. Lowenstein & Sons), and William Oothout, mill manager, vowed not to leave the scene until the mill was ready to start up again—and they only missed one night's sleep in keeping this vow.

The opening room was hit hardest. After the muck was cleaned up, the wet bales hoisted away, and the room hosed down, the electricians went to work. Every motor was removed, taken apart, cleaned with carbon tetrachloride, dried out, and reassembled. Nearly a dozen large motors were so treated in the opening room alone.

All wooden aprons were removed and dried out. The electrical panel boards were removed and rewired, and some parts were replaced. Even after they were reinstalled, some motors and parts were found to be still defective. Hurried calls brought rush deliveries of motors and parts from as far as 60 miles away.

The same situation existed in the case of most of the air compressors, weave-room motors (some 50 hp. and larger), waste-house bale presses, power-plant boilers, etc. But through the cooperative efforts of all Wamsutta personnel, almost every one of these tasks had been completed by the morning of Thursday, Sept. 2. Wamsutta was proud to announce a full first-shift operation while most of the other industrial establishments of the area were just getting to their knees.

In the office, hundreds of files were regrouped and resorted, and thousands of records were dried out. Almost all office supplies, including hundreds of different printed forms, were lost. Most of the laboratory, including furniture, instruments, testing machines, typewriters, calculators, etc., was completely submerged. But less than four weeks later, Wamsutta had almost completely recovered. Most damaged equipment and instruments were either repaired or replaced, warped floors were repaired and cleaned, and less than two days of production were lost.

Carol struck, but Wamsutta struck back.

## STA REPORT

# CLEANING Practices Surveyed For Carding, Spinning, Weaving

### Carding

Ceiling cleaners are used by one-third of the mills that answered the survey. The other mills have no special cleaning equipment. Where no special equipment is used, the overhead is blown down from once a shift to once a week.

More mills clean cards once a shift than at any other frequency; but one mill cleans every 2 hrs., and three mills clean once a day.

On drawing frames, most mills clean clearers and wipe fronts every doff. Rolls are cleaned at intervals of 5, 8, or 10 days. One mill blows off rolls with compressed air every doff.

For roving frames, most mills clean clearers and flyers every doff and have a general frame cleaning at intervals of 8, 24, or 40 hrs.

Sixteen out of 18 mills use roll pickers on roving frames. The range of time between roll cleaning ranges from 8 to 72 hrs., with most mills in the 24- to 60-hr. bracket.

A good Kink from one mill: Wipe Accotex cots with Clorox after buffing to prevent lapping.

### Spinning

Fifteen out of 16 mills report the use of overhead frame cleaners.

Ten of these mills blow down the ceiling once a week, but four do it daily and two just twice a year.

All the mills use compressed air to clean frames, and the frequency ranges from once every shift to once a week. Half the mills blow down the frames daily. In 14 mills the frames are stopped for cleaning, but three mills keep them running.

Roll pickers are used by a vast majority of the mills. Rolls are cleaned once a day in most mills, but two mills clean rolls every two days. One mill reported going to 144 hrs. with revolving clearers.

Kink: Clean rolls just before oiling to prevent oil from being slung off onto the cots.

An interesting discussion developed on spinning-frame cleaning. The chairman said, "Are we particularly desirous of having a living room in our mill? Are we blowing off our frames too frequently and thereby causing a lot of gouts just because we want the cleanest mill in the country?" One mill has sacrified looks for quality (after extensive tests) and blows down every 48 hrs. Another mill blows down every three months and has fewer gouts.

In one mill, roll pickers average 4,680 spindles every 8 hrs.

### Weaving

Only three mills out of 18 use special loom-cleaning equipment. One mill has vacuum cleaning, and two have overhead cleaners.

Most mills blow down overhead once a week, but the range is from three days to three weeks.

Frequency of blowing off looms ranges from once a shift to at every warp-out, but most mills do it every two days. Here are some detailed answers:

"We have specialized loom cleaners. All looms are washed with cleaning fluid once a year. Drop wires are blown out every shift, and harnesses and reed caps are brushed daily. All looms are blown off three times a week."

"At a warp-out, the loom is blown off. Drop wires, loomsides, and low parts are blown off daily. On print cloths and diaper fabrics, harnesses are brushed every six days. All patterns are blown off at a warp-out."

"Drop wires and stop motions are blown off every 16 hrs. Reed caps and harnesses are hand-cleaned daily, and the filling grate is hand-cleaned every shift. Looms are blown off at a warp-out."

Here is a checklist of 23 ways to keep cloth clean, based on mill replies on this subject.

1. Send cut-outs back to the people concerned.
2. Make sure that oilers and grease men wipe fittings and don't over-lubricate.
3. Cover looms when arches and overhead are cleaned.
4. Clean whiproll blocks every six months.
5. Have slasher men wipe beam journals at every doff.
6. Check beam racks for cleanliness.
7. Give towels to everyone handling cloth.
8. Don't put cloth tubes on the floor during cloth doffing.
9. Put a sack over the cloth roll during doffing and trucking.
10. Use oil-hole covers on large oil wells.
11. Try bottle oilers.
12. Cover adjoining looms when blowing off a loom.
13. Have fixers cover cloth while they're working.
14. Give cloth doffers and haulers white gloves.

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WILLIAM M. PITTENDREIGH, superintendent of Riegel's Ware Shoals, S. C., plant and chairman of the S. C. Div. of STA, presided at the Clemson meeting.

## STA REPORT

# How Four Mills Have Set EVENNESS STANDARDS

### Picking

**Mill A.** Maximum coefficient of variation is 2.0 on Saco-Lowell lap-meter tests. Any picker running laps over 2.0 is stopped and corrected. One lap is checked each day. Picker-room humidity is 50%.

**Mill B.** Maximum coefficient of variation is 2.01. Three pickers are tested daily. Tests are tabulated and posted by picker numbers—both coefficient of variation and standard deviation. Rechecks are made on pickers out of tolerance. Humidity is 50%.

**Mill C.** Maximum coefficient of variation is 2.0. Each picker is checked weekly. Humidity is 60%.

*Based on remarks made by Conrad B. Bookout, Uster Corp., at a meeting of the Piedmont Div., Southern Textile Association.*

**S. A. ROANE, Abbott Machine Co., Inc., presented a paper on rewinding filling and answered questions after the prepared paper.**

**Mill D.** Maximum coefficient of variation is 1.25 to 1.75, depending on the mix. One picker is checked daily. Humidity is 57 to 60%, and standard moisture content is 6.75%.

### Carding

**Mill A.** Card-sliver tolerance is 4.7% mean linear variation (Uster). If tolerance is exceeded, another sample is taken after a new lap is dropped. If the average of both tests is out of tolerance, the card is stopped and not started until it can make sliver within tolerance. Ten cards are checked daily, the day after grinding. A 10-yd. sample from each card is tested. Humidity is 52%.

**Mill B.** Uster tests are made on 45 cards a week. Tolerance is an integrator reading of 3.4. Tester is run at 8 yds. per min. For neps, 15 warp and 15 filling cards are checked daily. Rechecks are made on cards over tolerance the previous day. Maximum allowable neps are 12 per 100 sq. ins. Humidity is 50%.

**Mill C.** Standard for average variation is 3.5%. Upper control limit is 4.2%. A 10-yd. sample from each card is checked every eight weeks. Humidity is 60%.

**Mill D.** Maximum coefficient of variation is 1.60 on yard-to-yard weight plotted on a frequency distribution curve. Twenty cards are checked each week by the head grinder.

### Drawing

**Mill A.** Tolerance for breaker drawing is 4.5%; for finisher drawing, 4.9%. If out of control, follow same procedure as for cards. Test 10 yds. from each head of four different frames each day. Test at 4 yds. per min. on Model A tester with integrator. Humidity is 52%.

**Mill B.** Maximum integrator reading is 6.0 for warp and 7.0 for filling. Each delivery is tested once a week. Actual weights for each delivery are compared to show weight variation.

**Mill C.** Standard average variation is 3.34% for breaker drawing and 4.1% for finisher drawing. Upper control limits are 4.01% and 4.7%, respectively. Ten yards from two deliveries of two frames is tested daily. Humidity is 55%.

**Mill D.** Tests are run on a Saco-Lowell sliver tester. Maximum variation is 25%. Ten yards from each frame is tested monthly. Humidity is 55 to 60%.

### Roving

**Mill A.** No tolerance. Ten yards from each of two bobbins of each hank roving is tested (Uster) daily for information only. Humidity is 60%.

**Mill B.** On a Saco-Lowell sliver tester, tolerance is 5%. Ten yards tested from each frame at overhaul, style change, or staple-length change. Humidity is 55 to 60%.

**Mill C.** One bobbin on each hank from each type of frame is tested daily on the Belger tester. Twist gear is changed if twist is not on the upper half of the chart. One frame on each hank roving is tested every two days on a Uster tester with integrator. Top limit on 1.08-hk. carded roving is 7.5; on 1.48-hk. carded roving, 10.0.

**Mill D.** Ten yards of each size of roving is tested daily on a Uster tester with these tolerances: 1.00 hk., 7.2 ± 0.9; 1.25 hk., 7.4 ± 1.0; 1.70 hk., 6.9 ± 1.2; 2.20 hk., 7.3 ± 1.0; 2.80 hk., 7.9 ± 1.3; 3.60 hk., 8.7 ± 1.2.

### Common Causes of Irregularity

Carding
- Eccentric doffer
- Lickerin not functioning properly
- Fold draft caused by excessive pressure in can

Drawing
- Eccentric rolls
- Roll settings too wide
- Roll jumping from improper weight
- Dirty flutes

Roving
- Rolls set too wide
- Too much draft
- Improper weighting
- Flyers out of balance
- Eccentric rolls

# How To THROW DACRON

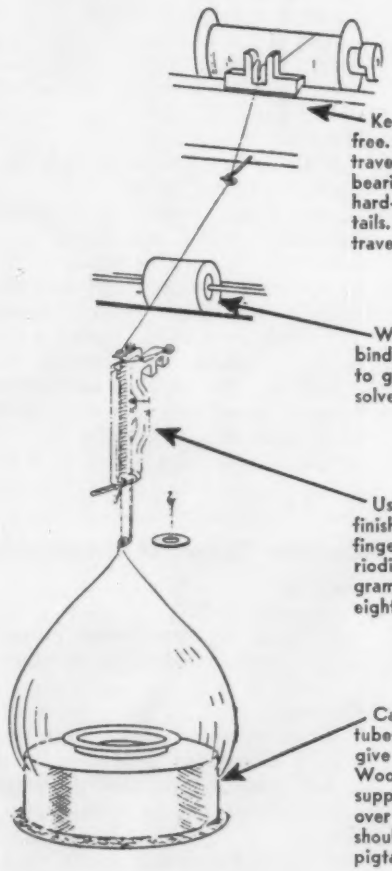
- There are three methods of throwing Dacron: redrawing and uptwisting, downtwisting, and half and half (partial twisting on downtwisters, finish twisting on uptwisters)
- Oil is used on 70-den. yarn, wax on 40-den.
- Warping procedure depends on what kind of packages are used

*Adapted from a presentation made to the Warp Knit Manufacturers Group of the National Federation of Textiles, Inc., by Jesse M. Wright, Customer Service Dept., E. I. du Pont de Nemours & Co., Inc.*

AT PRESENT, twisted Dacron yarns are desirable in tricot fabrics. Defects and imperfections are much lower, and quality fabrics are produced.

The optimum twist seems to be around 7 tpi., although 5- and 3-tpi. yarns are being used in several fabrics.

Most fabrics in the early days were



## REDRAWING TIPS

Keep take-up flanges clean and nick free. For a smooth, straight build, the traverse mechanism and rubber side bearings must be in perfect shape. Use hard-ceramic traverse guides and pigtails. Use an open wind (three to five traverses per inch).

Wax application is recommended to bind the filaments; adjust wax-roll speed to give a 1% pickup. Emulsion, melt, or solvent waxes can be used.

Use a gate tension device with matte finish or hard-ceramic fingers. Tension fingers need frequent cleaning and periodic replacement. Use three to six grams tension for 40-den. yarn; five to eight grams for 70-den.

Cap prevents yarn damage from rough tubes. Adjust cap-to-pigtail distance to give minimum balloon fluctuations. Wooden chuck on supply board anchors supply package, and felt or sheepskin pad over chuck prevents end-trapping. Chucks should be accurately centered under the pigtail.

## DOWNTWISTING TIPS

Double-pigtail tension guides with a matte finish are best, and the guides should be frequently cleaned. Pretension should be approximately four grams on 40- and 70-den. yarns.

Set tube holder to give proper alignment with double-pigtail tension device; felt pad over the holder prevents end-trapping. The cap prevents yarn damage from the tube.

Use hard-ceramic guides. The feed roll, idler roll, and pulley should have a matte finish; and they should be cleaned frequently and checked for nicks. Watch out for yarn winding over itself on the feed roll.

Change travelers frequently—at every doff with metal travelers and every six to eight doffs with nylon travelers. Nylon travelers give best performance; use E-12 travelers for 40-den. and E-5 or E-7 for 70-den. yarn. The take-up package should be free of ridges and build-up at the flanges; check smoothness of flanges.



both 40- and 70-den. zero-twist yarn, and this method is being used by the

and revolving roll. It is preferable to apply 0.75 to 1.25% wax, based on

application of wax. Too much wax means poor twisting performance and

# For Tricot Knitting

100%-Dacron 70-den. blouse fabrics. These fabrics were, and still are, moderately popular with the consumer. Later, Dacron entered the tricot lingerie market with 40-den. yarn in combination with dull nylon. The 40-den. yarn presented problems in knitting because the zero-twist bundle and the low denier per filament made the yarn hard to handle.

When zero-twist Dacron was first processed, one difficulty was the spreading of the filament bundle. The immediate reaction was to presize, but sizing proved to be a mistake. The sized yarn performed well in throwing; but in knitting, the size gave excessive shedding, snarling, and end-rolling during warping and knitting. Sley points on the knitting machine helped somewhat but did not solve the problem.

Most sizes do not have affinity for Dacron and the sizes that do, such as Elvadex, require baking; and baking is not possible in single-end sizing.

Today, practically all Dacron tricot is knitted with oiled yarns, although some waxed 40-den. Dacron is being used.

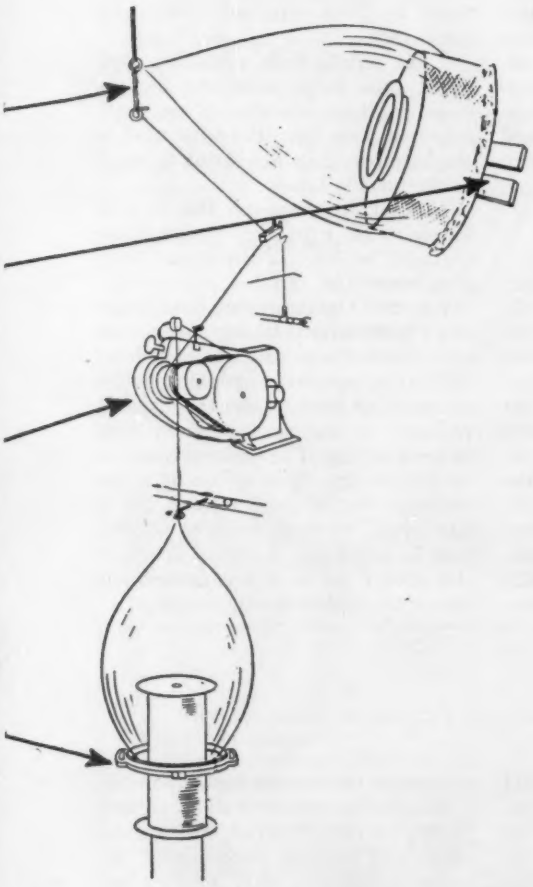
### Three Ways To Throw Dacron

**1. Redrawing and Uptwisting**

This procedure is satisfactory for 70-den. yarn if your equipment is in good condition and if you use correct adjustments for running Dacron. For 40-den. yarn, redrawing and uptwisting usually produce unsatisfactory yarn.

**2. Downtwisting**

A second method of throwing Dacron is to downtwist the entire number of turns. Downtwisting is the most desirable method of handling



### UPTWISTING TIPS

**Use a hard-ceramic traverse guide. Package formation should be perfect—proper hardness, free of ridges, and free of overthrows on headless packages. Snub-rod surfaces should be clean and free of nicks.**

**Adjust distance of pigtail to first snub rod to prevent secondary ballooning, and check alignment of first snub rod to minimize balloon fluctuations. The distance from the pigtail to the supply-package flange must also be adjusted (usually 2 to 3 ins.) to minimize balloon fluctuations.**

**Flyers are optional. Arguments for flyers: better balloon control, machines can be shut off when high twist is run, yarn is kept away from top flange, and tension is more uniform. If a flyer is used, a No. 7 is recommended; change at every doff. Arguments against flyers: flyers can cause yarn damage; flyers can add too much tension (tension during uptwisting should be three to five grams for 40-den.; five to eight grams for 70-den. yarn); and flyers increase the ringer incidence.**

**Use a perfect supply package—free of loops, flange build-ups, ridges, etc.**

both 40- and 70-den. zero-twist yarn, and this method is being used by the majority of mills processing Dacron.

**3. Half and Half**

A third method is to downtwist to 2 or 3 tpi. and then uptwist the remaining turns to 7 tpi. This compromise operation can be used where the downtwisting capacity is limited or where it is not desired to use a filament-binding agent. [This procedure is also being used to throw 20-tpi. yarn, with 2 tpi. downtwisted from cheeses and the remaining 18 tpi. uptwisted without flyers.]

### Prewax 40-Den. Yarn

Prewaxing seems to be essential for the production of high-quality 40-den. thrown yarn.

A light application of wax in redrawing or coning has come into use to give better filament binding. The wax is applied by a standard trough and revolving roll. It is preferable to apply 0.75 to 1.25% wax, based on the weight of the fiber. Emulsion, melt, and solvent waxes can be used.

The emulsion waxes are the most popular because they present few problems in application. Many mills prefer not to use solvent waxes because of solvent hazards, and others prefer not to use melt waxes because heating devices are needed in the application troughs.

Use a stable wax with no discoloration or rancidity characteristics. A completely saponifiable wax (no paraffin wax) is desirable to prevent trouble in removing the wax during finishing.

With emulsion waxes, the emulsion should be stable to get a constant and uniform application. It is advisable to check wax pickup frequently. Viscosity should also be frequently checked, and the emulsion should be changed when necessary.

Accurate control of roll speeds and yarn speeds is important to control the application of wax. Too much wax means poor twisting performance and an excessive deposit on knitting elements. Too much wax also causes the yarn to stick and snarl during removal from beams.

### Handle Yarn With Care

Dacron is supplied on a zero-twist package. The 3-lb. package presents a problem in handling the tube; any contact with the sides or top of the yarn tends to slough or break layers, and poor throwing and knitting performance result.

Remove yarn from the shipping case with care. In removing a tube, place your fingers within the core with the thumb on the outside surface of the package. Do not pull the cellophane off the package; unwrap and remove it carefully to prevent edges of the cellophane from ripping across the surface and breaking filaments. Use racks or buggies that prevent yarn contact.

## How To Warp Dacron

For low-turn yarns, which don't require twist setting, warp directly from the twister package. However, this method cannot be used with headless uptwister packages and milk-bottle downtwister packages.

In warping Dacron, handle the yarn as little as possible, and handle it carefully to prevent broken or looped filaments and stains, which can cause poor knitting performance and downgraded fabric.

The importance of tension uniformity cannot be overemphasized. Creels should be aligned carefully so that yarn contact with guide surfaces is held to a minimum and sharp angles avoided. Keep tension as low as practical; tension on individual ends should be approximately three to five grams, or just enough to hold up the stop motion.

Warping speed should be in the range of 200 to 350 yds. per min. Static and filament spreading can be minimized by maintaining the relative humidity at 65% and the temperature at 70° F. Cleanliness and constant inspection of guide- and yarn-contact surfaces are as important in warping as in throwing. Inspect guide tensions and surfaces periodically and replace where necessary.

### Oil or Wax Helps Warping

If oil or wax has not been added in the throwing operation, it may be desirable to add one or the other at warping or coning. A trough-and-roll device can be located before the beam take-up, and the application roll is set to give a 1 to 2% application. If wax is applied at this point, melt wax is desirable because of its quick-drying characteristics.

With double-flange downtwister and uptwister packages, which are difficult to warp directly, coning is necessary. Twist setting appears to be necessary for 7-tpi. yarn and optional for 3-tpi. yarn.

Twist setting with a headless cardboard tube helps eliminate the uneven shrinkage when yarns are twist-set on a hard core; the yarn next to the hard core does not shrink as much as the outside layers.

Uneven shrinkage can also be minimized with hard-core, double-flange packages by using a cardboard wrapping under the yarn.

For the highest-quality yarn, especially with large 1-lb. or larger hard-core double-flange packages, which are difficult to penetrate with steam, it is desirable to twist-set on a collapsible package; so coning is required prior to twist setting. The twist-set cone can be warped directly if collapsing is not excessive during twist setting; but if too severe, reconing prior to warping may be necessary. A second coning is also used if oil or wax is desired and cannot be applied during warping.

## Tips on Knitting Dacron

In knitting Dacron, as in knitting nylon, accurate machine adjustment is important. In general, the settings should be designed to give maximum clearance to small yarn defects so that they will pass through without breaking down the threadline and causing larger defects.

Warp ends may tend to bunch and roll as they pass over the tension bar, and undue tension is produced as the ends are pulled apart at the guides or break if the guides fail to pull them apart. To minimize end-rolling and resulting defects, sley points are suggested; set them just preceding and as close to the tension bar as possible.

A collection of size or oil on needles, guides, or other contact surfaces can cause poor knitting performance. Experience indicates that needles and guides should be blown out at least once per piece and cleaned thoroughly at the end of each warp.

*At Burlington Mills*

# Knitting-Machine DRIVES Get Close Attention

**For better production, better quality, and lower costs of full fashioned hosiery—**

**• Don't jog knitting machines • Replace worn contacts • Preheat mercury-type rectifiers**

REGULAR HABITS by knitters and fixers and periodic inspections keep full-fashioned knitting-machine drives at the May Hosiery Plant of Burlington Mills Corp., Burlington, N. C., in tiptop shape.

The knitter is a vital factor in our maintenance program. We find that in many cases, the drives that develop the least trouble are operated by efficient and all-round dependable knitters.

Many knitters today are oldtimers who learned their trade on old-type machines. On these machines, the only way to reduce speed for set-up was to jog or inch the machine. This practice often continued on the new machines.

## Don't Inch Machines

Excessive inching is destructive to the drive equipment; it shortens the life of the contact and contacter and creates unnecessary maintenance and added expense. Impress upon the knitter the damaging effect of excessive inching.

Responsibility for maintenance rests with operators, fixers, and maintenance personnel. A good scheduled-maintenance program is important to achieve better production, lower costs, and a good-quality product.

Routine maintenance demands periodic inspection, cleaning, lubricating, and replacement of various parts subject to wear and deterioration.

Cleaning is most important, and the exact schedule depends upon prevailing conditions in individual plants. Air qualities in relation to dirt, oil, lint, moisture, and other foreign material will vary. Give special attention to the air filters and keep the interior of the control cabinet clean at all times.

## Don't Overgrease Elements

The two rotating elements require periodic greasing. Regreasing once a year should be sufficient in most cases. Take care not to overgrease. Keep a record of greasing jobs, and have one individual responsible.

Replace brushes that are short. In most cases, it is best to install a complete set. These should be seated to the commutator properly. The correct type of brush is important. Use the type of brush recommended by the manufacturer.

Arcing should never be allowed to continue, for it will never improve. The cause should be determined and corrected. Causes may be out-of-round commutators, bad bearings, incorrect spring tension, and open or shorted coils.

Insulation failures can be predicted and in some cases may be corrected to save lost production and extra expense. An insulation test record on all the equipment is advisable.

## Replace Worn Contacts

Replace contacts when an inspection reveals that they are worn or burned excessively. Always change a pair of contacts to insure proper fitting.

Our contactor panels are of several different designs. The last design causes the least trouble. We have worked with the drive manufacturers to help with improvements where necessary. Copper contacts have given way to silver alloy, and replacement coils have been wound with silicone-insulated wire and treated with silicone insulating varnish.

Maintenance of the exciter panel has caused the least trouble of all. We do not keep accurate records to determine tube life but assume it to be two years or more. Replace only the bad tube when this trouble exists. In most cases, this trouble is visual as a tube

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*Based on a paper by C. R. Hyder, electrician, May Hosiery Plant, at a recent meeting of the Textile Subcommittee, American Institute of Electrical Engineers*

### How the Drive Works

The main part of the drive is a packaged variable-voltage unit consisting of:

1. A.c. starter and M.G. set
2. Electronic exciter panel
3. D.c. contactor panel

A direct-current motor drives the machine. This motor is connected in a loop circuit with the generator. An electric exciter controls these two d.c. components. The shunt field of the motor receives a constant 230 v., which is supplied by a pair of diode rectifier tubes.

There is another pair of tubes that supplies the excitation for the generator shunt field. These are thyratons, and the grids of these tubes control the output from 0 to 230 v. to vary the armature voltage on the generator, which in turn varies the motor speed.

The correct machine speed at the appointed time is selected by limit switches that are operated automatically by the chain control of the machine. The limit switches select six potentiometers that are preset to give a certain voltage or motor speed.



• Preparation and Dyeing

# CONVENTION PAPERS

**▸The last group of technical papers presented at the 33rd national convention of the American Association of Textile Chemists & Colorists are summarized in the following pages**

**▸ Papers condensed for presentation here relate to—**

- **Preparation and Dyeing**
- **Dyeing**
- **Waste Disposal**
- **Finishing**
- **Printing**

**▸Other AATCC papers were presented in the November and December issues of TEXTILE WORLD**

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**• Preparation and Dyeing**

## One-Stage PEROXIDE BLEACH Saves Money, Time, and Damage

- **Caustic steeping can replace caustic saturators and scouring units**
- **Acid-scouring, with or without caustic steeping, gives adequate preparation on 80x80 print clothes**
- **There is less chance of fabric damage in this simplified system**

**By T. E. BELL**
**H. D. TERHUNE**
**H. L. POTTER**
**M. H. ROWE**

THE SINGLE-STAGE peroxide-bleaching process employs one J-box that is used for the actual bleaching operation. Elimination of several washers, saturators, and one or more J-boxes makes the process economical and less productive of bruises, cracks, and other damages to light fabrics.

### How Goods Are Prepared

The caustic prescour now employed in most multistage ranges is eliminated. In the new method, the goods are padded in 4% caustic at 120 to 140° F. and let steep for 4 to 16 hrs. in bins, depending on the style. Low-grade, trashy goods or high-count sheetings will require the longer periods. Desizing is not necessary.

The caustic concentration of 4% appears to be the optimum amount to insure maximum whiteness. Some improvement in whiteness may be obtained by increasing the temperature of the caustic to 150° F., which permits shortening the time required for storage in bins.

Another type of preparation—the acid-sour method—has been used successfully on undesized cloth with results comparable to the older multistage process. The goods are run through sulfuric acid (1%) at room temperature and stored 20 mins. A caustic steep follows, and the goods are then bleached.

In another test, the caustic steep was omitted on an 80x80 print cloth. The fabric was first washed in hot water, soured in 1% sulfuric acid at 120° F., neutralized with caustic soda, and peroxide-bleached. Good bleaching and preparation were obtained.

### How Processes Compare

Analysis of an 80x80 print cloth bleached by the single-stage process is compared here with analyses of cloth from 23 different mills using the two-stage process:

| Analysis | NaOH steep one-stage bleach | Two-stage bleach |
|---|---|---|
| Whiteness (%) | 86.0 | 86.5 |
| Absorbency (secs.) | 1.9 | 2.5 |
| Oils, fats, and and waxes (%) | 0.33 | 0.26 |
| Noncotton (%) | 1.00 | 0.65 |
| Ash (%) | 0.20 | 0.22 |
| Fluidity (Rhes) | 4.6 | 4.9 |

The acid-sour process compares with the two-stage method as follows:

| Analysis | One-stage (No NaOH scour) Acid sour | Two-stage (With NaOH scour) Acid sour |
|---|---|---|
| Whiteness (%) | 89.0 | 88.0 |
| Absorbency (secs.) | 1.25 | 1.5 |
| Oils, fats, and waxes (%) | 0.22 | 0.20 |
| Noncotton (%) | 1.08 | 0.38 |
| Ash (%) | 0.46 | 0.05 |

Other points of interest in this simplified process include less weight loss and better widths. In spite of somewhat higher noncotton content, the fabrics were in good condition for finishing.

In mills now equipped for two-stage bleaching, production can be increased by splitting the range into two units. Where single-stage ranges are now in operation, elimination of the caustic scour may increase production and reduce material costs without additional capital investment.



**• Dyeing**

bleachery is down about 10% and bleaching is better.

• **Preparation and Dyeing**

# How COLORAY COLORS Stand Up

**• With few exceptions, blended fabrics containing Coloray fibers can be dyed and finished in much the same way as the other fiber alone would be treated**

**By GEOFFREY V. LUND**
Courtaulds, Inc.

HERE ARE SOME RECOMMENDATIONS on finishing fabrics containing Coloray spun-colored rayon:

**With Wool.** If wool dyes and methods that don't stain cellulose, cotton, or rayon are used, the wool can be dyed to any desired shade and the Coloray color will be unchanged. Dyeing with level-dyeing acid dyes, metallized azo dyes, or chrome dyes will not affect colors except brown, which is not quite fast to chrome dyeing. All colors are fast to normal scouring and milling, but red loses a little color when soap liquor is worked into it in milling.

No trouble is expected with wet-chlorination processes. Peroxide bleaching has no effect on Coloray colors.

**With Rayon.** There are no difficulties with desizing or bleaching. Spun-colored rayon has as much affinity for cotton dyes as white rayon, and overdyeing of black-white mixtures is finding increasing favor. Overdyeing or overprinting with vat dyes may destroy the coloring, however. All the Coloray range except yellows, blues, and greens withstand reduction with hydrosulfite and caustic soda.

Crease-resistant finishing has little effect on fastness; and Avcoset, Zelan, X-2, and Sanforset processes have no adverse effect on color and lightfastness.

**With Cotton.** Caustic-soda kier boils should be avoided. Use milder alkaline pretreatments. A hydrogen-peroxide bleach such as that used in jig or kier work has little effect on Coloray colors, and peroxide steam-bleaching experiments caused little color change and no bleaching except on red and brown.

Recommendations for dyeing rayon and Coloray apply equally to cotton-Coloray blends.

**With Synthetics.** Coloray colors are fast to cross-dyeing by the carrier technique using sodium orthophenylphenol as the swelling agent. The cuprous-ion method is suitable for all Coloray colors except khaki, tan, and Indian yellow. High-temperature dyeing (115 to 130° C.) may cause some marking off on nylon, Dacron, or acrylics, especially from a soap or acid bath, but salt helps.

### Use Tests

Tests carried out by the South Florida Test Service show that many Coloray colors are in Class 8 and that none are lower than Class 6 in lightfastness under glass. None of these colors are lower than Class 6 when exposed to direct weathering.

All the colors are Class 5 according to AATCC Wash Test No. 3, and only one color is lower than Class 5 on Wash Test No. 4.

A U. S. Testing Co. report shows that tests according to AATCC tentative procedures for fastness to acid and alkaline perspiration indicate negligible staining on all colors. All colors are fast to sea and pool water.

• **Dyeing**

# How To Dye ACRILAN and ACRILAN BLENDS

**• Acrilan accepts many classes of dyes**

**• Carrier or pressure methods are not needed to produce a wide variety of shades with good fastness properties**

**• Dyeing assistants of the right type added at the right time aid in producing solid shades**

**By WALTER H. HINDLE**
Chemstrand Corp.

ACRILAN may be dyed with direct, basic, disperse, acid, vat, and sulfur dyes by methods very similar to those employed with these dyes for the older fibers.

### Disperse Dyes

These dyes work very well on Acrilan. Normal dyeing times range from 45 to 150 mins. at temperatures of 200° F. or above. A full range of shades is possible. Wetfastness when the fabric is scoured at 140 to 160° F. after dyeing is very good. Crocking and perspiration fastness is excellent. Aftertreating with 3% copper sulfate and 2% acetic acid yields dyeings that withstand five AATCC No. 3 wash tests without loss of color.

Lightfastness is helped by shading with neutral-dyeing wool dyes with ammonium acetate or ammonium sulfate in the dyebath. Fade-Ometer ratings of 40 to 80 hrs. can be expected from this method. Gas fading of disperse dyes on Acrilan is not a problem.

### Basic Dyes

Selected basic dyes may be used economically for light to medium shades to give 20 hrs. Fade-Ometer tests and washfastness equivalent to the No. 3 AATCC test.

### Acid Dyes

A full shade range may be obtained by methods similar to those used in dyeing wool with acid dyes. Exhaustion of the dye is assured by the use of 4 to 6% sulfuric acid (owg) for a minimum of 1 hr. to obtain full penetration of the dye into the fiber. The acid dyes work best in the medium-shade range and are sometimes used to round out and brighten shades produced with the metallic dyes. Brilliant reds for high-mode shades are economically dyed with acid dyes.

### Chrome Dyes

Colorfastness of 40 to 100 hrs. Fade-Ometer lightfastness in medium to black shades is obtained with these dyes. They are washfast at 185° F. Color cost is low, and conventional dyeing methods are used. The total range of metallized dyestuffs can be applied to Acrilan and will give lightfastness equal to wool and washfastness somewhat better than wool.

The neutral-dyeing acid dyes, including the premetallized types, may be dyed on Acrilan up to medium shades; but proper penetration is secured only at the expense of lightfastness by an application of 2 to 3% sulfuric acid after the dyebath has been exhausted.

### Vat Dyes

The indigoids and thioindigoids may be applied on Acrilan at 205° F. to give lightfastness superior to similar dyeings on cotton. Pressure dyeing on stock at 230° F. is successful with vat dyes. It is important that the pH be kept at 8 to 10.

The soluble vat types are also applicable by padding or beck dyeing in the presence of acetic acid. The range is limited to light medium shades. Cotton and Acrilan blends cross-dye with only slight staining of the cotton.

### Acrilan-Rayon Blends

These blends are dyed with disperse dyes for the Acrilan and direct color for the rayon. The dyeing is done at 205° F. By proper selection of dyes and aftertreatment with copper complexes, washfastness of 140 to 160° F. can be obtained. Lightfastness of 20 to 40 hrs. may be expected.

On blends of Acrilan, acetate, and rayon, the Acrilan is dyed with neutral-dyeing acid colors or premetallized dyes at 205° F. with formic or acetic acid. When the shade is matched, nylon-resist salts are added to eliminate cross-staining in the subsequent acetate-rayon dyeing. The bath is neutralized and cooled to 165° F. and the rayon and acetate dyed in the regular manner. The rayon dyes used should leave

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be necessary. Strongly alkaline waste stor- sists of primary settling, low-rate trickling after scouring or dyeing or before final

• Dyeing

# Try Temperature Control To Improve VAT DYEING

- Instead of increasing the heat as dyeing progresses, starting hot and gradually cooling the bath gives superior results under some conditions
- Some troublesome dyes give good results by this method.

By M. R. FOX

PRESENT DAY METHODS of vat dyeing and printing involve considerably higher temperatures than was the case a few years ago. In 1930, 140° F. was a common dyeing temperature; but today, the range is up to 260° F. New dyes and equipment are partly responsible for this change.

In 1939, Boulton and Morton showed that over a temperature range of 113° F. to 194° F., there was a 2 to 15 times increase in the rate of diffusion for weak alkali vat dyes and a 5 to 20 times increase in rate for strong alkali vat dyes.

Marshall and Peters found that a temperature increase of 36° F. increased the rate of reduction of some dyes by as much as four times. Marshall also stated that the rate of reduction of vat dyes at 212° F. is from 30 to 60 times greater than at room temperature.

One of the disadvantages of high-temperature vat dyeing is that the leuco compounds break down in spite of assistants added to prevent it, if the time factor is too great. At present, only about 20 dyes possess the necessary stability in the leuco state to permit the use of high temperature methods to full advantage. There is some reason to believe that improved solutions bordering on the molecular state result when high temperatures are applied to suitable sodium leuco compounds of dyes.

## Tinctorial Power Lowered

The use of elevated temperatures reduces the strike of anthraquinoid dyes very materially, but at the same time the tinctorial power is lower at the higher temperature. By starting to dye at 260° F. and gradually cooling the bath to the optimum temperature for good exhaustion, the slower initial dyeing rate needed for good leveling and penetration is obtained.

Tightly wound high-twist mercerized yarns have been dyed successfully by such controlled-temperature methods in special machines suitable for high temperatures.

Insoluble pigment particles tend to agglomerate at high temperatures, but ranges of vat dyes carefully prepared for prepigmentation techniques are satisfactory for high-temperature dyeing.

The beneficial effects of high temperature extend to the soaping after dyeing. If soaping is done at 250°, vat dyeings of indanthrone types such as Caledon Blue XRN, Blue GCP, and Blue XRC exhibit excellent shade characteristics and are more resistant to chlorine bleaching than when soaping is carried out at atmospheric boil. Soaping at high temperatures (250° F.) for 15 to 20 mins. does not appear to increase crocking, but excessive time would be expected to increase this defect.

• Waste Disposal

# How Cannon Mills Tackled STREAM POLLUTION

- A three-step plan is being carried out, and results of pilot-plant operation will be used to help in designing a larger treatment plant

By JOHN L. BROWN, JR.
Cannon Mills Co.

SHORTLY AFTER PASSAGE of the North Carolina Stream Sanitation Law in 1951, we decided to make a study of our waste at Kannapolis, N. C.

A consultant recommended this three-step plan:

A. Reduce the strength and volume of the waste by recovering salvable materials and reusing cleaner wastes in preliminary processes

B. Analyze all waste-producing operations to determine if waste segregation would be beneficial

C. Try pilot-plant operation to determine design factors and the best method

## Step A

Step A, when completed, revealed that standardization of processes in the bleachery would reduce the strength of the waste considerably and that reuse of the cleaner wastes in the earlier bleachery steps was practical. This plan has been put into practice, and water consumption in the bleachery is down about 10% and bleaching is better.

The study also revealed that a great amount of heat could be recovered if fine screens were installed ahead of the heat exchangers to eliminate the fibers and strings that were clogging the exchangers. The cotton obtained from this improvement will be sold as waste.

The study proved also that there is a sizable quantity of water that can be treated and refiltered. The cost of this treatment is slightly above our present water-treatment costs, but the program is practical when waste-treatment costs are considered.

## Step B

From laboratory analysis we found that there were three general waste classifications, and we are separating the waste as follows:

1. About 16% of the total volume is acid waste from desizing and slashing. This waste is chiefly starch, and rapid decomposition takes place. It contains about 53% of the B.O.D.

2. About 19% of the total waste volume is strongly alkaline waste composed of caustic solutions and impurities that are washed from the goods before bleaching. It has a high pH and can be held in storage without any great change in characteristics. It contains 37% of the B.O.D., 43% of the total solids, and 60% of the total alkalinity.

3. About 65% of the total waste volume is milky alkaline composed of the discharge from washing, bleaching, dyeing, and finishing operations that are not included in the first two classifications. This waste contains 10% of the B.O.D., 21% of the total solids, and 34% of the total alkalinity.

From the above, we calculated that 90% of the B.O.D., 79% of the total solids, 66% of the total alkalinity, and 35% of the volume are concentrated in the first two classifications.

## Step C

Three pipe lines have been installed to our treatment-plant site. Operation of a pilot plant will begin as soon as the necessary segregation of the waste in the bleachery and dyehouse can be accomplished.

Our treatment will be a first-stage treatment for the first two classes of our industrial waste and then a final treatment on the effluent from this first-stage treatment combined with the remaining industrial waste and our domestic sewage.

The pilot plant will study (1) storage of the acid waste and the strongly alkaline waste, (2) blending of these two through a settling tank and filters, (3) combining this filter effluent with the mildly alkaline waste and the correct proportion of domestic sewage, and (4) the treatment of this combination through a second-stage treatment similar to our present sewage-treatment plant.

## Starch Settles Rapidly

In the acid-waste storage, the starch settles very rapidly and the pH drops rapidly to about 5.0 in 16 hrs. Removal of the settled material from the storage tank will



• Printing

reducing agent with an engraved roll and fix the dye in a saturated steam atmosphere.

be necessary. Strongly alkaline waste storage will not be a problem, but the tank may require agitation to prevent settling. A blend of the two wastes after storing, with about equal proportions, produces a waste of around 9.5 pH; and the solids settle very quickly. The filter loadings and recirculation ratios will be varied to determine design factors.

Our present domestic sewage plant consists of primary settling, low-rate trickling filters, secondary settling, chlorination, and separate sludge digestion. This plant will be incorporated in the design of the second-stage treatment. The filters will be converted from low rate to high rate with recirculation, depending on pilot-plant-operation data. The operation of the pilot plant for a year will furnish the necessary design factors.

• **Finishing**

# BRUSH and HEAT Treatment Improves Dacron Fabrics

**• Brushing fabrics containing Dacron removes short fibers and makes the rest of them lie down. Heating to 350 to 390° F. then sets the fibers and prevents pilling.**

**By J. H. ANDREEN**
Textile Fibers Dept.
E. I. du Pont de Nemours & Co., Inc.

ONE of the recently developed methods of finishing synthetic fabrics is the brush-and-heat treatment of fabrics containing Dacron. Heating the fabric to about 380° F. improves resistance to pilling, and greater improvement can be made by wire brushing before heating.

## How It Is Done

The fabric surfaces are treated by a cylindrical high-speed rotary wire brush. This brush, a modified tigering machine, turns in the opposite direction to the fabric travel and about 60 times faster than the fabric. The brush is ground for a smooth heel-to-toe polishing action rather than a plucking action; so no appreciable raising of individual fibers results.

After the brushing, fabrics are heat-treated on an enclosed pin tenter at 350 to 390° F. with exposures from 30 to 60 secs. Best results are obtained when allowance is made for 3 to 7% shrinkage in both warp and filling. Temperature control must be uniform from side to side to avoid differences in depth of shade in dyeing.

## Fabrics Are Not Harsh

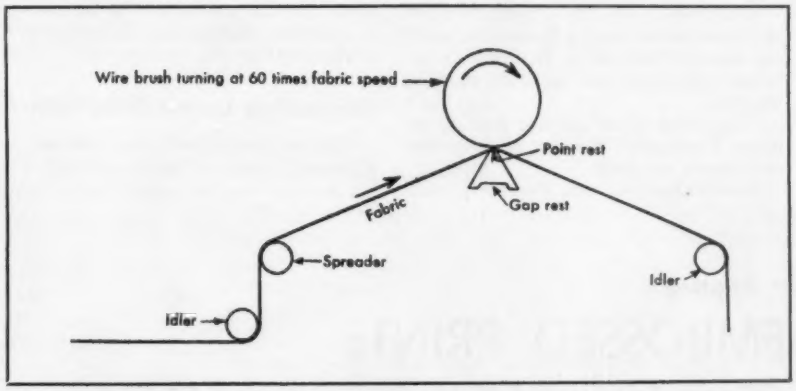
Application of these combined finishing steps to gray fabric permits maximum utilization of fabric shrinkage without harshening the fabric. The sequence of brushing followed by heating can be used after scouring or dyeing or before final shearing. Heat treatment after dyeing demands close attention to the proper selection of dyestuffs and heat-setting conditions to avoid dye sublimation.

On one 100% 2x2 twill Dacron fabric, for example, pilling tendency after five washings was reduced to one-tenth by the brush-heat treatment. The fabric was brushed, scoured, dyed, extracted, dried at 250° F., framed at 360° F. with 5% shrinkage, brushed, sheared, and semi-decated.

The brush-heat procedure has been applied to plain weaves, 2x1 twills, and sheen gabardines in suitings and to batistes, oxfords, and basket weaves in shirtings. Fabric compositions included 100% Dacron and blends of Dacron with cotton, rayon, and wool. In all cases, improved pill resistance and a reduced tendency to fuzz were shown in laboratory tests. The first results of wear tests confirm these improvements.

## Full Orlon for Soft Feel

Soft hands in fabrics of Orlon and Dacron have been experimentally obtained in a heated fulling mill. Fabrics used in this work, were loosely woven to permit the individual yarns to be moved and distorted. The fabrics were fulled wet with soap and water at 150 to 180° F.




**WIRE BRUSHING of fabrics containing Dacron removes some short fibers and lays down the rest, which are kept down by the heat treatment. Brushing is done on a tiger converted as shown.**

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• **Finishing**

# Moisture and Storage Affect ANTISTATIC AGENTS

**• Many antistatic agents lose their effectiveness during storage**

**• Agent should not be too viscous and should absorb humidity**

**By G. R. WARD**
General Aniline & Film Corp.

IN CARDING staple fiber, electrification will cause excessive lint and fly, some lubricity trouble, lap splitting, and fiber clinging to metal. In running tow and yarns, it will cause ballooning effects, build up lint on the guides, and attract soil particles. Finishing difficulties are numerous and troublesome. On such occasions, prompt use of a suitable agent may reduce static so that processing speeds can be maintained.

A lubricant is generally required for processing fiber. If this lubricant is made sufficiently conductive, any voltage rise on a fiber, yarn, or fabric can be dissipated by leakage to the ground or back to the point of origin.

An important factor in the conductivity of an antistatic agent is its moisture content. The effect of relative humidity on the resistivity of acetate and nylon fabrics treated with the agent oxyethylated alkylphenol gave a tenfold increase in conductivity as the relative humidity increased from 35% to 70%. The rate of change with humidity is not always constant; but many antistatic agents, including cationic agents, have increased similarly to oxyethylated alkylphenol. It seems, therefore, that

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• Printing

# How To Get Better Results In FLASH AGEING

**• Elimination of alkali-coagulable gums and modification of existing methods has widened the possibilities for greater acceptance of flash ageing of vat prints**

By A. K. SAVILLE
Technical Laboratory
E. I. du Pont de Nemours & Co., Inc.

ONE KEY to success in flash ageing of vat prints is choice of the proper thickener. Here is a summary of work we have done to replace alkali-coagulable gums with more-suitable agents.

## Where Some Thickeners Fail

Methyl cellulose and locust-bean gum or its derivatives can't be used alone because color value is poor. Starch is often added to improve yield, but the variable factors are so many that the ratio of starch to gum can vary from 4 to 1 to 1 to 1. So duplication of results is difficult.

In addition, such alkali-coagulable materials lower rate of dyeing because dye particles become enclosed in an insoluble envelope. Steaming time, therefore, must be increased.

Coagulating gums are also hard to remove. Printfastness may not be up to normal vat-dye standards.

Conventional aqueous thickeners, with additives, can be used; and emulsion systems of water in oil and vice versa both work. The lower the amount of thickener solids and the lower the tendency to coagulate with alkali, the more rapid is the fixation and the better is the color. **Water-in-oil or oil-in-water emulsions give a surprising increase in color value over the best aqueous system.**

Since these thickeners are low in solids and contain no coagulating gums, flushing and bleeding are appreciable during chemical padding. An increase in the resin binder reduces such flushing.

If the vat print is to be developed by padding with caustic and hydro and then steaming, a vehicle that coagulates with alkali or one that strongly bonds the pigment to the fiber must be used. But specific thickener formulations should be made for each application. If the method is so limited, flash ageing will be limited to screen printing and specialty roller styles.

## Eliminating Locust-Bean Gum

Without special thickeners, how are the alkali and reducing agent applied? The best way we found is to apply the thickened reducing agent with an engraved roll and fix the dye in a saturated steam atmosphere.

The fabric is printed in the conventional manner and dried. Later, the fabric is put face down through a single-color printing machine or padder with an over-all engraved roll in place of the usual smooth bottom roll. This roll is where the thickened caustic soda and sodium hydrosulfite are applied to the fabric face. The engraved roll is furnished in the usual way and doctored.

The goods then immediately enter an air-free steamer for 15 secs. at 214 to 216° F. The delivery end of the steamer is immersed in the first box of an open soaper in which the goods are rinsed with cold water, oxidized, and soaped.

Choice of thickeners is extended by this process. The best compromise that we've found is one part of 4% sodium alginate **and three parts of 10% wheat starch.** This thickener is mixed with the dye paste to get a suitable printing viscosity. The only restriction on the thickener is that it be compatible with high concentrations of caustic soda and sodium hydrosulfite.

In practice, 5% of caustic soda and 5% of sodium hydrosulfite, applied at 50 to 60% pickup by a suitably engraved cross-hatched roll, is ample to develop light, medium, and heavy shades on most fabrics.

## Steamer Is Simple

The best steamer is one made in an inverted U. Steamer temperature is not critical, but absence of air is essential. All our findings are based on tests in a moist steam atmosphere.

There is no flushing of the printed pattern, and there is a marked increase in color value. All vat dyes can be used, and color values are up 10 to 50%.

• Printing

# EMBOSSED PRINTS Give Three-Dimensional Effects

**• Embossing and coloring may be done in one run**

**• Inlay or tip printing is possible simultaneously**

**• Unusual effects can be created with combinations of dyes and metallic pigments**

By E. W. LAWRENCE and R. H. PHILLIPS

COTTON FABRICS printed and embossed in one run are a new development in finishing methods. The preparation of the fabric for embossing is fairly well known. Resins are applied to the bleached cloth and dried on a tenter to about 10% moisture content. They are then passed through an embossing calender, cured at 300° F. for 2 to 3 mins., washed, and finished to width.

The addition of color, both in the depressed areas (inlay printing) or to the raised surfaces (tip printing), may be made at the same time by printing devices attached to the calender.

Certain resins are resistant to caustic solutions, and advantage is taken of this property in printing on colored resinous mixtures and then passing the cloth through a caustic solution. The unprinted areas shrink, producing a fitted plissé.

The embossing calender has a steel roll engraved with the pattern and a wool and paper bowl into which the pattern is impressed by running in with water. The temperature of the steel roll is generally held between 300 and 400° F. during the printing operation.

## Special Inks Needed

For textile printing, special inks and solvents are necessary to withstand the high temperatures of the embossing roll. The inking device consists of a 2- or 3-gal. color box and two or more accurately ground rubber rolls geared together. Often, a steel furnisher roll running in the color box conveys the color to the rubber rolls. This assembly is mounted on a sled and can be moved toward or away from the engraved embossing cylinder by a fine-screw adjusting device.

The rubber rolls must not deflect when they are screwed together for operating purposes, or color application will be uneven. The rubber rolls are geared to the cylinder or driven through a variable-speed drive so that they rotate at the same surface speed.

In operation, the inking assembly is at first moved away from the engraved cylinder and the required ink is furnished to the rubber rolls. The necessary adjustments are made to the rubber roll used for the actual printing so that the color film is of the proper thickness. The sled is then moved in so that the inking roll contacts the engraved cylinder with sufficient pressure to get an even transfer. The thickness of

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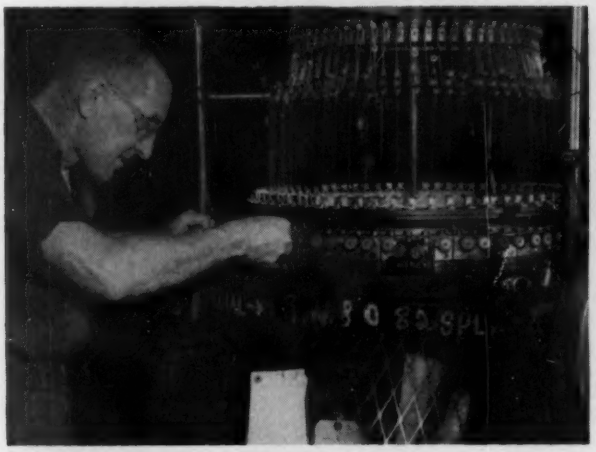


FRICTIONLESS NEEDLES are placed in this machine to reduce needle streaks. Painted orange marks prevent needle mix-ups.

STITCH-CAM POST was drilled off center to move the stitch cam closer to the raising cam for better needle control.

# How Shawmutt, Inc., Reduced NEEDLE STREAKS

**Needle streaks give little trouble when—**

- **Frictionless needles are used**
- **Needles are kept under control**
- **Regular cleaning schedules are kept**

By **JAMES H. BLORE,** Associate Editor, TEXTILE WORLD

NEEDLE STREAKS in Orlon jersey fabrics were a pain in the neck at Shawmutt, Inc., Stoughton, Mass.; so the management decided to do something about it. Here is how it tackled the job:

Fabrics from new machines were found to be fairly free of streaks. Wool fabrics from old machines, after finishing, were also streak free, and it was concluded that the Orlon does not felt like wool to fill in the streaks during finishing.

Experiments were then conducted to eliminate the streaks on the knitting machine. A new cylinder and sinker-rest ring were installed on one machine, but the results were still not satisfactory.

The machines used in the experiments were 19-cut, 24-in. Supreme ML 64-feed machines with 1,440 needles.

## Straight Needles Were Used

The greatest improvement was seen in the appearance of the fabric when the usual crimped needles were replaced with needles of a frictionless type. These needles are Torrington 50-gauge, 8082 special needles, which are identical to the normal needles with the exception of the perfectly flat stem.

The needles are free to ride up and down the slots with no friction on the slot walls. This freedom of movement, however, caused other troubles.

Drop stitches in the fabric occurred because of a lack of control as the needles first contacted the stitch cam. This trouble was eliminated by fitting a new stitch-cam post with off-set drilled holes. The new post moved the stitch cam to the right to give the needles closer control as they left the raising cam.

## Sinkers Were Adjusted

The sinker-cam ring was moved to the right to adjust the timing to the new cam position. Knitting Superintendent Gerard Daley positions the new sinker-cam ring so that the lowest needle is opposite the second sinker to the left from the center of the sinker pull-back.

The leading edge of the stitch cam is polished slightly concave. The stitch cams are taken down low, and the stitches on all feeds are made equal lengths. To regulate the quality from this point, the cylinder is raised or lowered.

An eight-point suspension is used instead of the usual four-point suspension to reduce horizontal streaks caused by untrue cylinders.

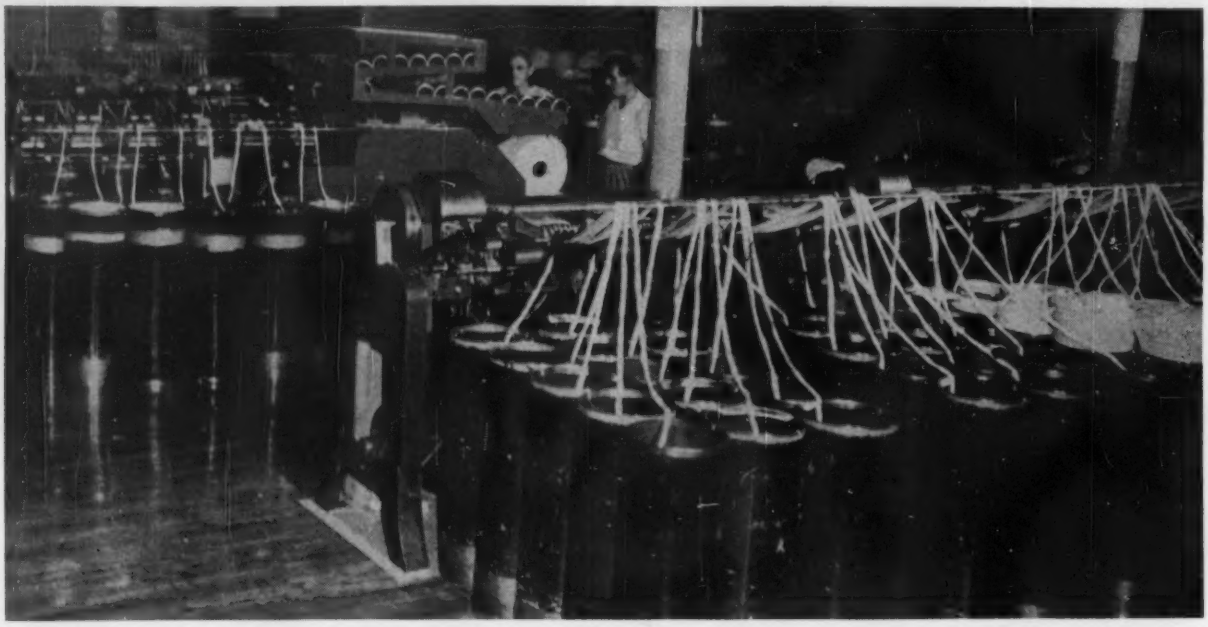
## Machine Speed Was Reduced

The machine speed has been reduced from 21 rpm. to 17 rpm. Orange-painted needle numbers on the machine guards help to prevent the crimped needles becoming mixed with the frictionless needles in the same cylinders.

Dirty oil streaks in the fabric are prevented by regular cleaning schedules. Needle oil is poured on the needles at the end of each roll, and the machine knits one yard of fabric to clean off the oil.

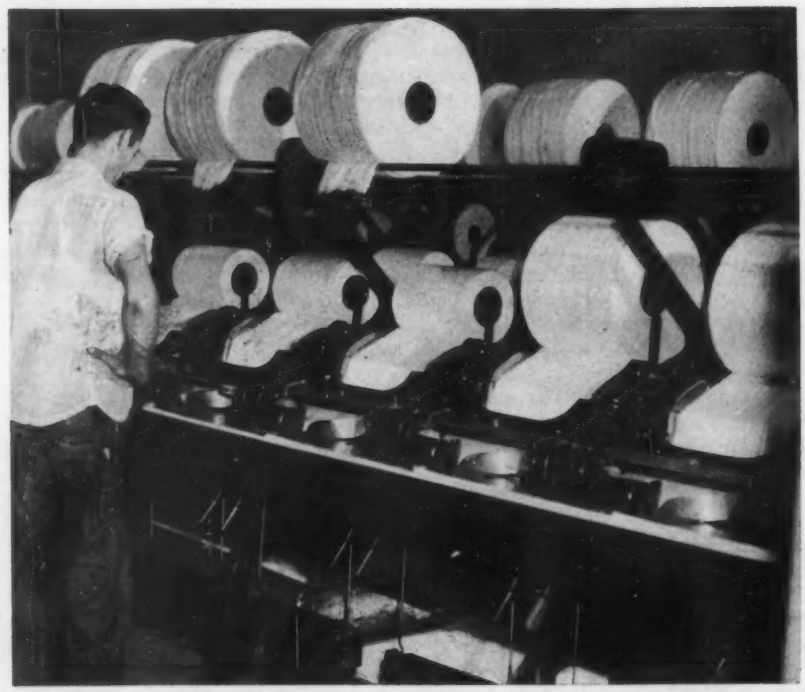
A 100-lb. air-pressure hose is used on the needles each day. At the end of the week, the needles are flushed with a little Solverloose mixed with Houghton needle-rust preventive No. 10.

Technicians from E. I. du Pont de Nemours & Co., Inc., and Supreme Knitting Machine Co. worked with Shawmutt on the project to reduce needle streaks.



PREPARATORY DRAWING, foreground, is run seven ends up at a speed of about 130 ft. per min. Shown as he examines a comber lap from one of the six 10½-in. lap winders with Operator J. H. Seagraves (left) is D. C. Dellinger, carding overseer.

# New COMBING Setup At Parkdale Mills



COMBER WASTE on the 70 Naismith combers has been reduced as a result of better laps since drawings and lap winders replaced sliver and ribbon lappers. Laps are more uniform and don't split as often.

**Improvements at Parkdale Mills have netted more-uniform yarn, less waste, and better-running work. The new setup includes—**

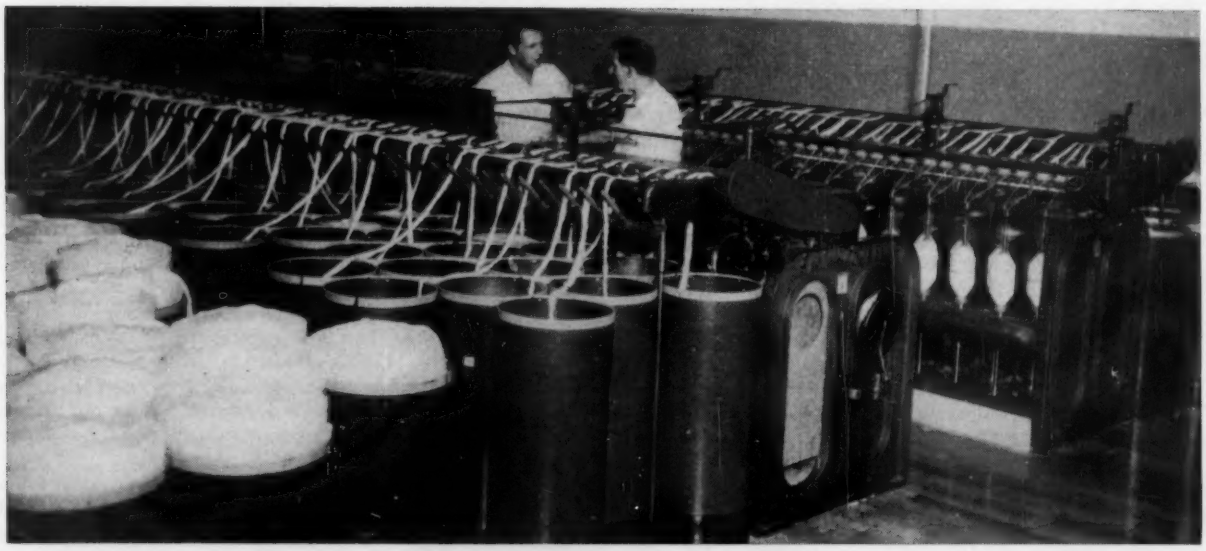
- **Preparatory drawing and lap winders instead of lappers**
- **Three-over-four finisher drawing instead of four-roll**
- **Refrigerated air conditioning throughout**

**By W. A. THOMASON, JR.**
**Textile Engineer**

THE MOST IMPORTANT QUALITIES in the 18s to 32s combed singles knitting yarn that Parkdale Mills, Inc., Gastonia, N. C., makes are yarn uniformity and appearance. Although regular laboratory tests are run, the final test of the yarn is its appearance in the knitted fabric.

Parkdale has two circular knitting machines for knitting its yarn into fab-

NEW THREE-OVER-FOUR DRAWING replaced old four-roll drawing. Assistant Superintendent W. Duke Kimbrell (right) shown as he examines a can of sliver with Dave Dellinger, says that distribution of short fibers in the yarn is better since the new Saco-Lowell drawing was installed.



THE 14-IN. FINISHER DRAWING CANS creeled in the slubbers hold 40% more sliver than the old 12-in. cans did. Each slubber operator now runs four 9x4½ frames. Shown as they examine drafting rolls are Duke Kimbrell (left) and Dave Dellinger (right).

ric for inspection. Vice President and Superintendent Minor R. Adams and Assistant Superintendent W. Duke Kimbrell check the yarn appearance in the knitted fabric regularly. They say that since the comber organization has been changed, the yarn has a better feel and is more even in the knitted fabric.

### Drawing Replaced Lappers

Seventy-two deliveries of four-roll preparatory drawing and six 10½-in. lap winders, 20 ends up, replaced sliver lappers and ribbon lappers. The drawing is run seven ends up. The mill plans to add 12 more deliveries of drawing.

It has 70 Naismith combers. Comber-lap weight is 750 grains per yard, and the combed sliver weighs 60 grains per yard. Since installation of the new preparation, the quality of the sliver has been definitely improved.

Duke Kimbrell says, "Our opinion is that fewer long fibers are in the noil. We believe that the relatively high draft in the drawing process before combing causes long fibers to go to the core or center of the sliver and the short fibers to come to the surface. The comber can then do a better job without taking out as many long fibers. Also, we get fewer split laps and more-uniform laps with this type of preparation."

### New After-Combing Drawing

Before the changes, the mill had 120 deliveries of four-roll drawing with 1⅜-in. front rolls. These large-diameter

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checklist. Then the second hand place worn parts as they're needed. second hand after he goes on the job.

# Georgia Mill Men Standardize WEAVING METHODS

▶ Georgia mill executives agree pretty closely on the best ways to keep looms rocking along. Twenty-two mills give written reports identical in many details.

EXPERIENCES with Teflon-coated filling grates and mechanical loom cleaners were the only completely new phases of weaving presented for discussion at the weaving session of the annual fall meeting of the Textile Operating Executives of Georgia at Georgia Tech on Oct. 23. Other subjects discussed were common problems, and answers given indicate standard procedures are firmly installed at most of the 22 participating mills to control most troubles.

### Teflon Is Being Tested

Teflon-coated filling grates are being used to some extent in nine mills. One mill has approximately 650 looms with this type of grate and has reduced grate-cleaning frequency from once every 8 hrs. to only once every 24 hrs. Other reports are:

**Mill A** – "Our experience with Teflon-coated grates is limited. The few we have are staying clean, but the coating is wearing off where the filling strikes the grate."

**Mill B**–"We have a sample order on X-2 looms that have been running over a month. The weaver has not had to clean the grates yet. We like them fine so far."

**Mill C**–"Our experience is limited; however, results so far are good. The grates are easy to clean."

**Mill D**–"We have used a few Teflon-coated grates for a short time. To date, they have been satisfactory in every way."

Only three mills reported experience with overhead loom cleaners, and their reports weren't greatly detailed:

**Mill A**–"We have one traveling loom cleaner over 32 looms. The cleaners are controlled with a time switch so that they complete a cycle every 13 mins.

"The cleaning is satisfactory except at warp-outs. We use 85% r.h. in this section of the weave room and weave 56-in. ticking."

**Mill B**–"Two years ago, we tested traveling loom cleaners on 28 X-2 looms weaving acetate yarns. They have been removed."

**Mill C**–"We have a cleaner over 64 looms that completes a cycle every 10 mins."

### Take-up Rolls Perform Well

The average life of metallized take-up rolls was reported as being exceptionally high. And cloth damage from this type of roller was observed in only one mill. Reports are:

**Mill A**–"Estimated life is 8 to 10 years."

**Mill B**–"Our rolls have been running three years on X-2 and E-model looms. The take-up rolls do not damage cloth, but we have had some trouble with cloth slippage at new warps."

**Mill C**–"We are getting good results from the metallized rolls on approximately 1,800 E-model looms weaving chambray. Some of the rolls have been running five years and are still in good condition."

**Mill D**–"The average life of metallized take-up rolls on our XP dobby looms is 1½ years on drapery cloth."

**Mill E**–"We have some metallized take-up rolls still running after five years. If the grit is too coarse, it will cut some weaves."

MAC ISAACS called on men from 22 Georgia mills to get their answers to 12 weaving problems.

### Constant Job Procedures Make Looms Run Better

Loom maintenance methods were reported by 22 mills. Facts given show that every mill is using an effective method to insure efficient loom operation. Representative methods used are:

**Mill A**–"Our loom maintenance program consists of three main phases:

"1. Preventive maintenance by loomfixers

"The loomfixer on each shift has a permanent assignment of one-third the looms on his section for maintenance work. The work is scheduled this way:

"Daily checks–

"Inspect the woven cloth and observe the operation of the filling-changing motion.

"Weekly checks–

"a. Check shuttles, leathers, binders, and pickers on Monday and Tuesday.

"b. Check crank arms, lay guides, and filling forks on Wednesday and Thursday.

"c. Check lay swords, rocker shafts, and parallel blocks on Friday.

"2. Periodic inspection by supervisors

"The supervisor assigns one loom at a time to a loomfixer. The loom is on the loomfixer's third of the looms. The loomfixer checks the loom thoroughly and makes standard settings with gauges. As the fixer makes the settings, he fills out a loom-maintenance checklist and gives it to the second hand. The second hand rechecks the loom, has the loomfixer make corrections, and places the checklist in the weave-room office.

"3. Shuttle-installation procedure

"a. The loomfixer aligns the loom with straightedges and leaves the straightedges on the loom.

"b. He checks and retightens the loom.

"c. The fixer calls the second hand.

"d. The second hand dates the shuttle and issues the shuttle and a



## TOE—Weaving Problems (Continued)

### Looms Are Cleaned by Vacuum

the weave room. Some reports are

Jerk-backs are not a major problem

checklist. Then the second hand goes to the loom and checks the alignment.

"e. The fixer checks off the other items on the checklist.

"f. The loomfixer restarts the loom and turns the checklist in to the second hand.

"g. The second hand rechecks the loom.

"In case the checking is not completed at the end of a shift, the checklist is turned in to the second hand and is reissued by the following second hand."

### Looms Are Checked Daily

**Mill B**—"Each loomfixer checks one loom each day by a check form and replaces worn parts. The form is then turned in to the second hand, and he rechecks the loom. Then the weaving overseer spot-checks the looms from the forms.

"Shuttles are inspected each week by the overseer and are graded by their condition. Looms damaging shuttles are repaired.

"Before a new warp is tied in, the second hand checks the drop wires and heddles. If they are worn, a new pattern is tied in the loom. The worn drop wires and heddles are discarded after the slashing-department foreman inspects them.

"A red flag is put on a loom each time a new warp is tied in and is left until the second hand sees that the harnesses are set properly.

"Reed troubles show up when cloth is inspected. If reed repairs cannot be made at the loom, the reed is replaced. The reeds removed are inspected in the slashing department and repaired or discarded. Stored reeds are treated with a rust preventive, sealed in a paper tube, and held until needed."

**Mill C**—"We divide our looms equally between the fixers on our sections for maintenance. Each loomfixer is responsible for keeping his looms in good mechanical condition.

"Supervisors check all looms each week and have loomfixers make needed repairs. Then the supervisor checks the loom again after the repairs have been made.

"Shuttles are checked at the same time the loom is checked.

"We are changing patterns constantly; and harnesses and reeds are repaired, cleaned, and polished when they are returned to the drawing-in department."

### Dobbies Are Checked Often

Seven of 10 mills explaining their methods of overhauling dobbies replace worn parts as they're needed. The other three mills prefer periodic general overhauling; one mill overhauls the dobbies once a year, and the other one does the work once every three or four years in addition to parts replacements as they're needed. The most-detailed answer is:

"Periodic overhauling will prevent some, but not all, routine replacement of dobby parts. The moving parts of the dobby should be removed at least once a year and thoroughly cleaned. Any defective or badly worn parts should be discarded.

"We use two men working together to overhaul dobbies. One man removes the parts; another man cleans them in a cleaning solution at the loom and dries them. Then the first man examines the parts and replaces them. With this method, little production is lost and it's not necessary to remove the dobbies from the loom."

### Overhauling Is Obsolete

All 22 mills reported their methods of overhauling looms. The trend is against using overhaulers because only seven mills report using them. Instead, looms are constantly checked by loomfixers and supervisors to prevent the need for general overhauling. Mill reports are:

**Mill A**—"We do not have a formal overhauling schedule."

**Mill B**—"We do not overhaul looms but try to maintain them at all times."

**Mill C**—"We have no program."

**Mill D**—"Weekly inspections are made on all looms, and any needed repairs are made at once. We find that keeping all looms in good condition eliminates most overhauling, simplifies the buying of repair parts, makes loomfixers' jobs easier, increases weave-room efficiency, and improves cloth quality."

**Mill E**—"We do not overhaul looms by cycles. The take-up and let-off are overhauled once each year. Crankshafts, camshafts, rocker shafts, lays, etc. are overhauled as needed. We have regular overhaulers on the weave-room payroll."

### Every Mill Trains Loomfixers

Loomfixer training is an important phase in the operations of every one of the 22 mills. As one executive put it, "We have loomfixers still training after fixing looms 30 years." The mills generally agreed that it takes several years to make a good loomfixer, but one mill puts a carefully selected trainee on a section of looms after only six weeks of extensive training; he is closely supervised by the second hand after he goes on the job.

One mill places so much importance on loomfixer training that it has a constant crew of eight apprentice loomfixers under the direction of two experienced loomfixers. A total of 80 employees are enrolled in another loomfixer training class every year and, in addition, an on-the-job training course is given all loomfixers.

Many mills use state vocational training to supplement their own training courses.

Important portions of mill reports on loomfixer training are:

**Mill A**—"Average training time is 500 hrs."

**Mill B**—"We have not hired a loomfixer in a number of years. Training and upgrading employees in our own mill takes care of our needs. Fixers are made from men who have worked in the weave room several years. They have experience as hour hands, weavers, and warp men."

**Mill C**—"We select a good weaver between the ages of 25 and 35 and place him with a good loomfixer for six to eight weeks.

"After this training period, he is placed on a section beside a fixer with many years' experience. This loomfixer and the second hand help the learner until he is capable of running a section."

### State Vocational Classes Help

**Mill D**—"Our loomfixers are trained through state vocational classes. A learner is given a section after he has completed two sessions per week of 2 hrs. each for nine months. He has, of course, to be helped and supervised for some time after he is given the section."

**Mill E**—"We select warp men and promote them to learner-fixers. These boys are assigned to an experienced fixer for training. After about two years, they are promoted to loomfixer-helpers and are given small sections.

"During the following two or three years, they remain under the supervision of an experienced fixer. Then they are given sections of their own."

**Mill F**—"We think 12 months training is necessary for an average loomfixer-trainee."

**Mill G**—"It takes several years to make a good loomfixer."

**Mill H**—"Learners are given 40 hrs. of instruction on looms in a training room. Along with and following the class instruction, the trainees work with regular fixers on small jobs.

"After about six months, the average learner is able to perform all duties."

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Checklist for DRAWING

## TOE—Weaving Problems (Continued)

### Looms Are Cleaned by Vacuum

No new ideas were advanced to clean looms better or more easily except in one mill where the upper parts of looms are cleaned with a vacuum cleaner. But all 22 mills are giving a lot of attention to keeping their looms clean. Looms are blown off with compressed air at a frequency range of once every shift to once a week. The cleaning methods of all mills are very similar. A typical mill answer to the cleaning problem is:

"We divide our cleaning two ways: (1) cleaning with warps on the loom and (2) cleaning when warps are out.

"To clean looms at warp-outs, the filling is removed from the battery and the yarn is cleaned from the thread holder. Then the loom is blown off with compressed air.

"A cleaning solution is sprayed on the loom, and the loom is blown off again with compressed air. Strings are picked off the shafts. The whip-roll bearings and harness-roll-shaft bearings are wiped out.

"Then the loom is lubricated completely.

"While the loom is being cleaned, looms directly across the alleys are protected by oilcloth covers.

"All looms are blown off with air once or twice each week in addition to the warp-out cleaning.

"The upper parts of looms weaving print cloths are cleaned with a vacuum cleaner.

"Filling forks are cleaned once every 24 hrs. on light weaves and once every 12 hrs. on print cloths."

### Planned Quality Control Gives Better Cloth

To keep weave-room employees informed on looms making second-quality cloth, cloth-room inspectors in 16 mills send written reports to the weave room. Some reports are sent as soon as the cloth is inspected, but the average mill sends reports every 2 hrs.

But written reports aren't fast enough in two mills; one mill phones the reports, and the other uses an intercommunication system.

An average report gives the weaver's name, shift, style number, and loom number and lists the defect. In most mills, forms are used so that inspectors have only to check the defect.

Usually the report goes to the weave-room second hand, and he checks the loom with the weaver or loomfixer.

In some mills, the weavers look at bad cloth in the cloth room, but the usual practice is to return defective cloth to the weave room.

All 22 mills answering questions at the meeting indicated in the report on quality control that they're keeping a tight checkrein on second-quality cloth.

### How To Stop Kinks and Jerk-ins

Controlling kinky filling at the loom brought out many ideas. Four mills condition their filling to help eliminate the kinks.

Most mills looked to the tension on the filling in the shuttle as one of their first checks. They think proper bristles or proper bristles and fur are essential. Most mills agreed, too, that proper harness settings are necessary to eliminate the defect. Another important factor is to keep picker-stick power to a minimum. Mill comments are:

Mill A—"We have little trouble with kinks because our filling is package-dyed."

Mill B—"We rewind our filling on Abbott quillers. Since going to this method, we have eliminated practically all kinky filling."

Jerk-backs are not a major problem at most mills reporting, but the problem is a chronic one in that weavers and loomfixers have to be constantly alert. Mills say:

Mill A—"Jerked-in filling on looms equipped with Stafford thread cutters can be kept to a minimum by:

"1. Setting the thread cutter properly

"2. Eliminating bouncing shuttles

"3. Keeping shuttles bristled and grooved properly

"4. Keeping good leather on the front box plate

"5. Checking the fiber filling-knife guide for grooves. Always change the guide when you're changing to finer filling."

Mill B—"We keep the shuttle grooved on the front side and bottom, keep good leather on the box fronts and binders, keep pickers in good condition, keep the shuttles boxing correctly, and keep the thread cutter set correctly."

### Ways To Stop Cloth Telescoping

Telescoping of cloth at the cloth roller of looms as the cloth builds up is another chronic problem with most mills reporting. Mill solutions are:

Mill A—"We get good results by starting the end of the cloth right at the beginning of the roll. The roll is also under heavy tension at this time. Loomfixers check the cloth-roll spring and racks periodically to be sure they're operating efficiently."

Mill B—"We use collars on the cloth rods, keep cloth-rod bearings level, and maintain even tension on the ends of rods."

Mill C—"We use square cloth rods inside wooden shells the full length of the cloth-rod space. Wooden keys fasten the cloth to the wooden shells."

Mill D—"The main causes of telescoping cloth are:

"1. Cloth not started right on the cloth roll

"2. Weak cloth-roll springs

"3. One end of the cloth roll going up ahead of the other

"4. Broken teeth in the spring-shaft gear or cloth-roll rack

"5. Spring shaft bent or binding

"6. Worn cloth-roll block

"7. Badly worn fillet on the take-up roll

"8. Take-up roll not level

"9. Slack-woven cloth

"10. Bent or sprung cloth roll"

Mill E—"Our answer to the problem is to use a 3-in.-dia. wooden tube over the cloth-roll rod. A metal washer is attached to each end of the tube, and there's just enough clearance at the end of the washers to allow them to miss the cloth-roll stand."

## Humanics — A TW Brief

### How Is Your Attitude?

**How can a supervisor build a good working atmosphere in his department? The answer lies within the supervisor. If you can answer the following questions with "Yes," the chances are that the working atmosphere in your department is good. If you can't answer "Yes," a morale survey would probably turn up poor conditions in your department. The questions:**

**1. Do you believe that probably all problems with workers involve bad communications and misunderstandings?**

**2. Do you believe that workers with low abilities are just as sensitive as workers with higher abilities?**

**3. Do you have respect for workers who have problems that you don't have and have never had?**

**4. Do you believe that every worker would prefer to do a good job?**

# How a Super-Carder-Spinner Team

# Checklist for DRAWING

▶ **Starting from the machine condition, you can check what processing trouble results from a machine condition and the remedy**

▶ **Starting from the result, you can check the condition that caused the trouble and find the remedy**

**By JOHN E. ALLEN**

| Condition | Result | Remedy |
|---|---|---|
| **Calender Rolls** | | |
| Worn bearings<br>Worn necks | Rolls run eccentric; uneven tension, uneven sliver | Check oiling schedule |
| Dirty rolls | Bunches in sliver | Check cleaning schedule |
| **Clearers** | | |
| Dirty<br>Cloth bedded with motes<br>Heavy weights on clearers | Flutes fill up; worn steel-roll flutes; poor drafting and uneven sliver | Adopt adequate cleaning schedule and make sure it is followed |
| Not picked often enough | Bunches in sliver | Slotted underclearers will prevent bunches |
| **Coilers** | | |
| Oily | Oily sliver | Keep coilers clean |
| Dirty tubes | Poor running | Use whiting on flannel fastened to piece of broom handle |
| **Driving Shafts** | | |
| Running untrue | Drive shaft runs eccentric | True the shaft |
| **Gears and Studs** | | |
| Worn<br>Poorly meshed<br>Crooked | Cut sliver and uneven work | Regular machine inspection |
| **Top Rolls (Leather)** | | |
| Loose covering<br>Hollowed<br>Grooved | Uneven drafting; thick-and-thin sliver | Regular change schedule |
| **Top Rolls (Cork)** | | |
| Hollowed<br>Worn | Uneven drafting; uneven sliver | Regular buffing schedule; replace worn rolls |

| Condition | Result | Remedy |
|---|---|---|
| **Top Rolls (Metallic)** | | |
| Worn collars | Rolls mesh too deeply; sliver is cut | Check for worn collars when frames are scoured |
| Dirty flutes | Uneven drafting; uneven sliver | Regular scouring |
| **Bottom Rolls** | | |
| Worn necks<br>Loose, worn squares | Rolls run eccentric; thick-and-thin places in sliver | Correct conditions in scouring; be sure to feel for loose squares |
| Oily and dirty flutes | Oily work and uneven drafting | Oil necks more carefully |
| **Roll Stands** | | |
| Dirty | Worn roll necks | Check cleaning schedule |
| **Stop Motions** | | |
| Not working | Uneven work | Important: Check continually |
| **Tension Gearing** | | |
| Worn<br>Poorly meshed | Thin places; uneven work; end-breakage in later processes | Check in scouring. Many mills have changed to fine-pitch tension gearing, which allows better control of tension |
| **Trumpets** | | |
| Holes too large | Poorly condensed sliver; uneven sliver | Use standard trumpet for sliver being run |
| **Turntables** | | |
| Loose supports | Cans not held in proper position; sliver poorly built in cans | Proper machine inspection |
| **Weight Hooks** | | |
| Resting on lifter bar | Uneven drafting | Check for this condition in scouring |

# How a Super-Carder-Spinner Team Reduced YARN DEFECTS

By W. A. THOMASON, JR., Textile Engineer

▶ A sales-yarn mill recently put on a campaign to reduce the number of defects in its yarn. Three men concentrated on one major defect each.

▶ Here's what they did to reduce the defects—

THE SUPERINTENDENT of a medium-size Southern sales-yarn mill that spins high-quality knitting and weaving yarns put on a campaign to reduce the number of defects in his yarn. He made a list of all the different types of defects the mill was concerned about; and when the list was analyzed, it showed that practically all the defects were entirely or in part caused by worker carelessness.

He asked each overseer to take from the list one defect that he would like to try to eliminate or reduce, and the superintendent took one himself. The three major defects that they picked and what they did to reduce them were—

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**Long-Range Variation**

**Card-Room Overseer**

The card-room overseer picked long-range variation as his project. He would try to help hold the yarn numbers more closely. He started by checking his equipment. He put new belts in the eveners of the pickers; replaced worn gears in the card coiler; and replaced bent rolls, worn top-roll bearings, and worn tension gears on the drawing frames.

The 14-oz. picker laps are tested on a Saco-Lowell lapmeter. Allowing 2/5 oz. ±, 91% of the yarns were within limits. In an effort to improve this condition, the overseer paid particular attention to the way the opening-room men fed the F-5 hoppers. They were tending to fill the hoppers too full and let them run too low. This situation apparently caused the density of the cotton in the lap to vary; when the operators were instructed to maintain a more-even level, the laps got a little better.

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**Short-Range Variation**

**Spinning-Room Overseer**

The spinning-room overseer picked short-range variation caused in spinning. He picked out one spinner's job of six frames to see how much improvement could be made. The frames are equipped with Casablancas long draft. With a Uster eveness tester, he checked the yarn from six spindles on each side to get an indication of the average variation and range that existed before he started his project.

The draft gearing was inspected, and all worn gears were replaced. Top and bottom rolls were checked for

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**Neps**

**Superintendent**

The superintendent picked neps as his subject.

He decided to work first on one line of 12 cards, and he and a grinder checked each of the 12 cards thoroughly. They inspected lickerins, cylinders, doffers, flats, screens, and bearings. The clothing and screens were in good shape, but three sets of cylinder bearings had to be replaced. Each card was ground and set. The flats were set as closely as they could run, with the two back strands being set at 9 and the three front stands at 8. The regular settings were 10 and 9.

A nep count was made 2 hrs. after each card was ground to check on the

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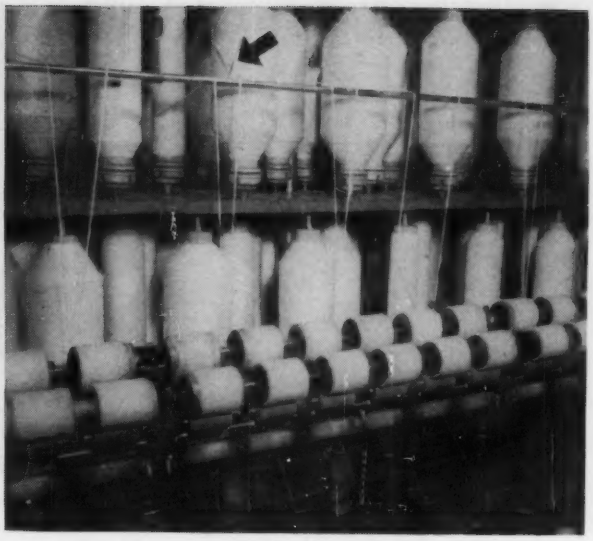
**BAD SLIVER PIECING will cause thick and thin places in yarn. The piecing that this operator is making will cause a thick place in the yarn if it doesn't tear down an end before it becomes yarn.**



**AN OILY SLUB is in the making here. The piece of cleaner waste (arrow) on the roving will probably pull off with the roving and spin through the rolls.**

The picker tenders were asked to do an especially good job of cleaning the screens and beater sections at the end of each shift and to make good start-ups. Tests were made to see what fan speeds gave the best sheeting in the finisher beater, and the speeds were increased from about 1,300 rpm. to 1,400 rpm. With improved fan speeds, beater speeds appeared to be satisfactory and were not changed.

As a result of the changes and careful attention, the yards within limits increased to 96% and better.

At the cards, tests showed that card tenders should tear off about ½ yd. of each new lap and about 1½ yds. of each butt end when they laid laps. The uniformity of sliver in cans was checked against sliver delivered from the calender rolls to determine if any coilers were causing uneven work. The sliver from each comber and each delivery of drawing was checked for uniformity and the charts analyzed particularly for heavy or light places caused by mechanical defects. Wherever such causes were located, they were corrected.

As a result of the close supervision and worker education, the long-term variation in the yarn was reduced considerably. On the average, the variation in yarn size for 20s combed yarn is now held within 2% ± of the number being spun.

wear and straightness. Cap bars and saddles were checked for wear. Worn cap-bar nebs and saddles were replaced. Bent rolls were replaced, and several bottom rolls were repacked. Top-roll coverings and aprons were inspected. All top rolls were rebuffed or replaced. New aprons were put on two sides.

Then the overseer started checking on roll picking and cleaning. The spinners do their own cleaning, and rolls are picked with pneumatic pickers. He found that too much cotton was getting under the aprons, and he worked with the roll pickers and spinners to keep the cradles clean. He showed them the uneven drafting that resulted from dirty aprons.

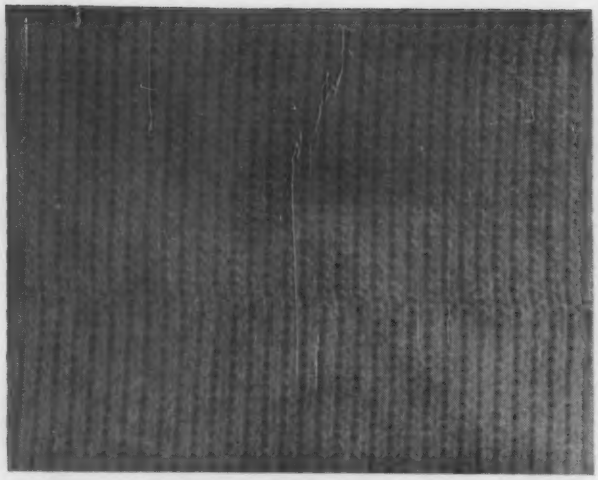
The yarn improved considerably, and the same procedure was followed throughout the room.

settings. Neps were counted each 24 hrs. at the same time in the stripping cycle to see when the cards should be ground again. The tests showed that the mill's grinding cycle of about every 10 days was satisfactory.

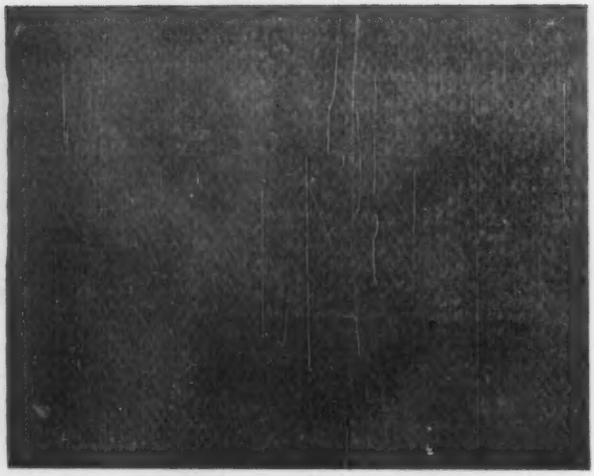
The stripping cycle was checked. Nep counts were made each half hour after a card was stripped to see when it should be stripped again. Cards had been stripped twice each shift, and the tests showed that they should be stripped three times each shift.

The changes in settings and stripping cycle, together with careful work by the card grinders, reduced the neps per 100 sq. ins. of web from an average of 32 to an average of 24.

Based on other mills' experience, the assistant overseer recommended that the mill make up the mixes based on fiber fineness. A system of checking a sample of each bale with a Micronaire is being installed. The mill plans to make up mixes to get an average fineness of 4 micrograms per inch, based on Micronaire tests.



SIMPLEX 48-STEP ATLAS FABRIC made from 100s cotton yarn has two return courses.



SAME FABRIC finished with a 22% caustic-soda solution has closed-up stitches.

# How Simplex GLOVE FABRICS Are Made

**▶ The two-needle-bar tricot machine produces good fabrics for gloves. Here are the knitting and finishing details for several fabrics.**

By **FREDERICK SCHMIDT,** Regent Knitting Mills Ltd.

GLOVE FABRICS with a suede finish were originally made from cotton yarns on tricot machines. These fabrics were not tight enough to provide a suitable hand; so two layers of tricot fabric were glued back to back. From this development, double-faced tricot or Simplex fabrics were produced.

When properly produced and finished, the fabric looks like a leather product. Simplex fabric is, however, cheaper than the leather product; it is easily washable; and it gives a better fit because of its elasticity.

The Simplex machine uses spring needles. The needles are set back to back and inclined to each other at an angle of 40 to 45°. Each needle bar has its own cams, presser bar, and sinker bar. The two guide bars supply yarn to both sets of needles.

### Use 60s to 110s Cotton Yarn

Cotton yarn used on 28- and 32-gauge machines ranges from 60s to 110s. The best results are obtained from combed yarn, usually of Egyptian cotton. The yarn should be waxed or sized with a softener to increase the yarn's smoothness, strength, and flexibility.

Cotton fabrics generally have two-guide-bar atlas structures. These structures produce even, clean, and regular fabrics because the threads traverse sideways; irregularities in the yarn are further evened out because the second guide bar travels in the opposite direction. The most-common atlas is a repeat over 48 steps, although 36- or 24-step atlas fabrics are made.

The notation for a 48-step atlas is 1-0,2-3/4-5,6-7/ and so on for the front bar, while the back guide bar is 96-97, 95-94/93-92,91-90/ and so on. The first pair of numbers of each bar in the notation works with the front needle bar, and the second pair of numbers works with the back needle bar.

Open stitches are produced except at the two turning courses where the traverse changes. Since the underlaps are under one needle, the 48-step atlas traverses across 96 needles and makes 48 stitches. There are 24 stitches on each side of the two needle bars. Only every fourth fabric loop is made by the same thread on the same needle bar.

The 36-step atlas traverses over 72 needles, and the 24-step atlas traverses over 48 needles. In all cases, both front-bar beam and back-bar beam have equal runner lengths.

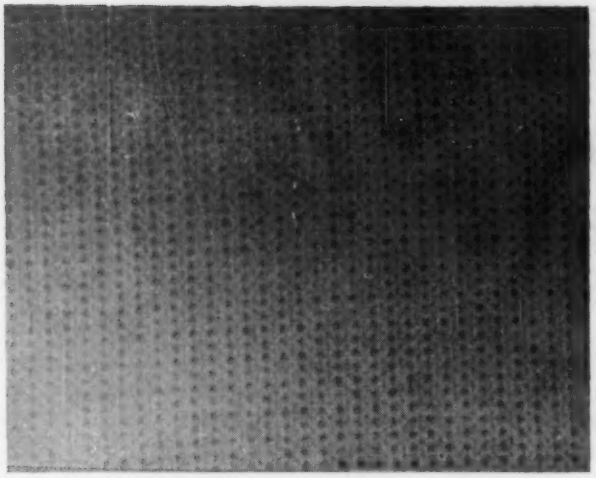
### Control Quality With Stripes

The two return courses at the beginning and the center of the repeat are closed loops, and these loops are tighter than the open loops. These courses produce a faint line across the fabric. The distance between these courses changes with the fabric quality. The tighter the stitches are, the smaller is the distance between the stripes.

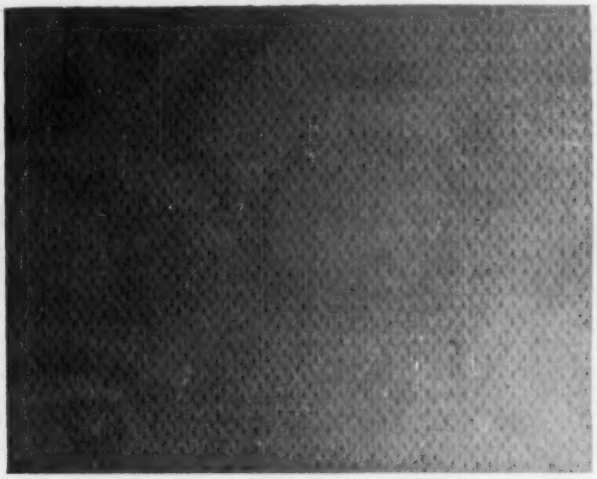
The standard quality measurement can be based on this distance. The number of lines in a certain length unit indicates the fabric quality. The standard will vary with the yarn number, the length of repeat, and the machine gauge.

For instance, a 48-step atlas fabric knitted with 80s cotton on a 30-gauge machine may have 14 horizontal stripes in 10 ins. of fabric. A decrease in the number of lines indicates a bigger stitch and a lighter material.

This system is better than the conventional tricot system of checking quality. The machine does not have



SILK ATLAS FABRIC made from 60-den. acetate yarn has no return courses.



TWO-STEP ATLAS ACETATE FABRIC is treated like cotton fabrics except for brushing.

to be stopped, and stop marks are eliminated during checking.

Runner lengths per rack must be constantly checked to maintain equal runners from both warps.

### Apply Low Tension on Take-Up

To prevent load-ups during knocking over, the fabric take-up should be adjusted to give as little tension as possible. The weight of the fabric is usually sufficient to pull it down, and the fabric can be released if a load-up occurs.

Filament yarns do not require a long atlas to obtain an even cloth; so a silk atlas lap that traverses two steps only is used. The usual notation for a silk lap is:

Front guide bar 2-3,4-5/3-2,1-0/
Back guide bar 3-2,1-0,/1-2,3-4/

The ratio of the runners is nine for the back bar and ten for the front bar.

Since no long traverses are made, there are no horizontal stripes. The quality is measured by the number of stitches per inch or the inches of fabric per rack of 480 stitches.

One popular Simplex fabric with the silk atlas construction uses 40-den. nylon in one bar and 70-den. nylon in the other bar.

### Net Fabrics Made With Empty Guides

Net fabrics can be made on Simplex machines by using long atlas laps for cotton yarns and short repeats for filament yarns. Here is the setout for a rayon or nylon net:

Front guide bar—7-8,7-6/7-8,7-6/7-8,7-6/5-4,3-2/1-0,1-2/1-0,1-2/1-0,1-2/3-4,5-6/

Back guide bar—1-0,1-2/1-0,1-2/1-0,1-2/3-4,5-6/7-8,7-6/7-8,7-6/7-8,7-6/5-4,3-2/

The threading is 11 in and 1 out on both guide bars.

Pigskin imitations are made with cotton yarn. An interrupted atlas lap with a partially threaded set-out in one guide bar only is used. A different yarn number in each guide bar may be used.

### Quality Depends on Finishing

The quality of Simplex glove fabrics depends largely on the finishing processes. Here is a recommended procedure for cotton fabrics:

1. Wet out
2. Boil off or kier-boil for 6 hrs. Use 6% soda ash, 6% soap, 6% turkey red oil, 6% caustic soda (30%), and 1½% waterglass
3. Neutralize
4. Hydro-extract, but do not dry
5. Mill with 15% caustic-soda solution for preshrunk fabrics and with 30% caustic soda for fully shrunk fabrics
6. Rest for 2 to 6 hrs.
7. Neutralize
8. Bleach
9. Soap bath with 8% P. G. soap and 3% soda ash
10. Hydro-extract
11. Dry
12. Make the first brush, twice on each side, with emery-covered rolls. This brushing should be strong.
13. Dye
14. Hydro-extract
15. Dry
16. Make the second brush lightly, once on each side, with emery-covered rolls
17. Shear
18. Press
19. Steam and roll

### Control Fabric Shrinkage

Fully shrunk fabrics and preshrunk fabrics carry an indication of the fabric quality and the amount of shrinkage in the fabric. A fully shrunk cloth is fuller in hand and heavier than a preshrunk one. The fabric shrinkage is controlled by the caustic-soda-solution strength during milling.

A fabric knitted from 100s cotton on a 30-gauge machine and treated with 30% caustic soda solution will shrink from the gray width of about 84 ins. to 36 ins. The fabric area shrinks about 35% and is fully shrunk. The same material subject to a 15% caustic-soda-solution treatment results in a fabric about 43 ins. wide. This is a preshrunk fabric, and the area shrinkage is about 28%.

As in mercerizing, the cotton fibers swell. As the fabric is not under tension during the treatment, no luster is obtained. The swelling gives a tight, compact fabric.

The 50 to 60% shrinkage in width is not entirely achieved in milling but only after the final tenter-frame drying. The fabric is stretched in drying to gain about 35% length. The fabric should be kept under tension in width during stretching to obtain a sideways elasticity of about 70%.

During the 2- to 6-hr. rest period, the fabric should be kept free from draft or conditions that may partially dry the exposed places. Dry spots result in uneven dyeing, and they can be prevented by covering the fabric with a damp cloth.



Spindle speed goes down | Twist per inch goes down | And twist is lost (by test)

much actual tape slippage there is under normal conditions. See table at bottom of page.

In this example, the required revolutions would be:

surface speed of front rolls

# What the Spinning Overseer Should Know About TWIST LOSS

► The spindle assembly, tapes, and pulleys are usually responsible for twist loss. Maintenance of these elements will keep twist loss to a minimum.

► As tapes become more slack, twist loss increases. An allowance for normal tape slippage is included in the whorl-cylinder ratio.

► Traveler speed changes with the build-up, but twist loss is seldom more than 0.5 tpi. at the slowest part of the cycle.

By MARCUS C. GROSS

THE MAJOR CAUSES for loss of twist are few. Constant inspection and maintenance of the spindle assembly, tapes, and tape pulleys, will prevent serious loss of twist and resultant poor quality. The traveler causes little twist loss, and contraction is easily compensated for.

Slackness of tapes is one of the major causes of loss of twist in yarn. Slack tapes invariably mean slack, soft bobbins; and tensions applied to the yarn after spinning—shuttle tension, winding, and stretch at the slasher, etc.—progressively add to the problem. This type of yarn, sometimes called sausage yarn, will definitely go off-shade and raise havoc with lighter, pastel-colored fabrics. In fact, a twist defect results in one of the worst quality defects visible in cloth, and it is often mistaken for something else.

Old ragged tapes can cause a loss of up to 2 tpi. or more; but don't think of slack tapes solely as old, ragged tapes flapping weakly against the whorl of the spindle. If the tension pulleys are not properly adjusted, cleaned, and oiled, new tapes will also run slack.

### Routine Inspections Help

The section hand should make a daily inspection of all running spindles, and he should be on the lookout for bad tapes to replace them. Special emphasis should be placed on spindle plumbers checking tapes and tape pulleys when they make their rounds.

If possible, frames should be equipped with keyway bases and bolsters or ball-bearing spindle assemblies. Pin-type bases and bolsters have to be replaced more often because the pin wears out quicker and causes an oil leak and/or a rotating bolster that soon can cause poor quality. These replacements cost money, not only in parts but also in increased labor costs, directly or indirectly.

Oilers should be coached to report any unusual condition in the spindle assembly. An oiler is an oiler; but if he is taught to watch for bad tapes, bad bobbins, and bad spindles, a lot of trouble can be avoided.

Sewed tapes have proved to be superior to hooked tapes, and sewed tapes should be put on so that the whorl of the spindle rolls over the splice instead of against it. This method prolongs the life of the tape. All tapes should be well centered on the pulleys. A 3-in. overlap is sufficient, and any more than 3 ins. is a waste of time and stock. A well-sewed tape should last about two years on a one-shift basis.

If frames are blown down periodically, the cleaners should be taught the importance of blowing down tape pulleys.

Another major cause for loss of twist is a spindle dragging from lack of oil.

On one test, a dragging spindle caused a twist loss of over 20%. As a spindle starts to drag, the speed becomes erratic and slows down. Oilers should not skip a single spindle assembly, and they should be told the importance of this practice.

### Make Twist Check

A twist test, of course, is the best way to check for twist loss. One of the best ways to make a twist test is to take five bobbins each from opposite ends and sides of the frame, one from every second spindle. Each bobbin should be numbered to identify the spindle it was lifted from.

If a twist test indicates a twist loss, do not change the twist gears arbitrarily. Putting on a smaller gear to increase twist slows production; and if you slow down the front roll just a few revolutions, the loss in production can be substantial when multiplied by the total spindles on that yarn number. Changing gears may not be necessary; wait until the spindle assemblies and tapes have been checked, especially on the spindles that produced the test bobbins.

### How Much Twist Is Lost?

Inspections have turned up spindles that had lost 800 to 900 rpm. from slack tapes. As slackness becomes worse, the spindle-speed and twist loss become progressively greater. Here is an example:

A standard yarn construction calls for a spindle speed of 8,200 rpm. and a mechanical turns per inch of 17.14. The surface delivery of the front rolls was 487 ins. per. min.; but as tape slackness sets in—

| Spindle speed goes down | Twist per inch goes down | And twist is lost (by test) |
|---|---|---|
| 8,200 | 16.84 | .30 |
| 8,100 | 16.63 | .51 |
| 8,000 | 16.43 | .71 |
| 7,900 | 16.22 | .92 |
| 7,800 | 16.02 | 1.12 |
| 7,700 | 15.81 | 1.33 |
| 7,600 | 15.61 | 1.53 |
| 7,500 | 15.40 | 1.74 |

### Ratio Allows for Slippage

Under normal mill conditions, some tape slippage always occurs because the spindle, unlike a gear, is not positively driven. To allow for this normal slippage, ratios between the cylinder and whorl are adjusted by the machine manufacturers. Acceptance of the ratios supplied is the general rule.

But if you doubt the accuracy of a ratio, a simple method of checking is to divide cylinder speed into spindle speed at various stages of the doff interval. In one such case, the ratio of an old band-driven frame had to be determined; and the ratio was finally determined when the bobbin was nearly full and normal slippage was near its highest point.

After this ratio was used, no further trouble was encountered. When normal tape slippage was at its lowest point (at the beginning of the cycle), twist loss from the traveler was at its highest point. And these two factors balanced each other: as twist loss from normal slippage increased, twist loss from the traveler decreased.

Once the ratio is established, normal loss of twist by slippage is not a major factor; it is automatically taken care of before the mechanical turns per inch is determined.

### Some Twist Loss Is Normal

How much is the normal twist loss between the mechanical and actual turns per inch? Let's examine a Whitin twist constant of 1,341, with the ratio of 8.30, cylinder diameter of 8 ins., whorl diameter of $\frac{15}{16}$ in., jack gear of 132 teeth, cylinder gear of 26 teeth, front-roll gear of 100 teeth, front-roll diameter of 1 in., and front-roll circumference of 3.1416 ins.

The constant without an allowance for slippage would be:

$$\frac{100 \times 132 \times 8.00}{1 \times 26 \times 15/16 \times 3.1416} = 1,379$$

And the cylinder-whorl ratio would be $8.00 \div \frac{15}{16} = 8.533$. Since the accepted ratio is 8.30, a deduction of approximately 0.24 has been made by Whitin to cover tape slippage.

A comparison of the mechanical turns per inch with and without the allowance for slippage indicates how much actual tape slippage there is under normal conditions. See table at bottom of page.

At first glance, the twist loss appears to be almost one turn for every 35 turns or 1/35 turn for every turn of the spindle. With a spindle speed of 9,000 rpm., the loss in turns would be approximately 250. This loss is the normal loss from slippage that is taken care of by the allowance in the accepted ratio.

### Don't Blame Traveler Speed

When twist per inch varies sharply, the traveler is usually considered a probable cause. But the traveler is usually not to blame, for the changing speed of the traveler through the spinning cycle seldom causes more than a half-turn loss at the start of the doff and less at the finish. So for practical reasons, tables of traveler speeds are usually calculated from spindle speeds and do not include the change in traveler speed during the spinning cycle. (However, the change in traveler speed is important in accurately determining feet per minute of the traveler.)

On body yarns such as warp yarn, the traveler speed is less at the beginning of the spinning cycle than at the end. But on taper yarns such as filling and filling winds, the traveler speed varies constantly; and if the traverse is completely tapered, the traveler speed varies constantly on each layer: faster at the heel and slower at the nose.

To prove how much twist loss can be caused by the traveler, a check was made on a 30s warp yarn spun with a 2-in. ring with a front-roll speed of 110 rpm., spindle speed of 9,100 rpm., twist multiplier of 4.75, 26.02 turns per inch, bobbin diameter of $\frac{3}{4}$ in., bobbin circumference of 2.355 ins., and front-roll diameter of 1 in. The surface delivery of the front roll was 345.4 ins. per min.

Now at the start of the doff, when traveler speed is slowest, how much slower is the traveler than the spindle? The difference in revolutions per minute is approximately the same as the number of revolutions the bobbin would require to wind the surface delivery of the front rolls without a traveler.

In this example, the required revolutions would be:

$$\frac{\text{surface speed of front rolls}}{\text{circumference of empty bobbin}}$$

$$\frac{345.4}{2.355} = \text{approximately } 147$$

So at the start of the doff, the traveler speed would be 9,100 − 147 = 8,953.

At first glance, the loss of 147 revolutions by the traveler seems to indicate a sizable loss in twist. But remember that the loss is spread throughout the 345.4 ins. delivered by the front rolls.

The actual loss in twist per inch is found as follows:

$$\text{Turns per inch based on spindle speed: } \frac{9,100}{345.4} = 26.35$$

$$\text{Turns per inch based on traveler speed: } \frac{8,953}{345.4} = 25.92$$

(Calculated by this method, the twist per inch corresponds closely with that obtained by multiplying the square root of the yarn number by the twist multiplier.)

So at the start of the cycle, the loss in twist attributable to the traveler would be 26.35 − 25.92 = 0.43 tpi.

At the halfway point, a check with calipers showed that the circumference of the bobbin had increased to 4.32 ins. and the traveler speed to within 80 revolutions of the spindle speed. The loss in twist had been reduced to 0.23 tpi.

In a complete series of tests, the loss of twist caused by the traveler did not exceed 0.5 tpi. at the beginning of the doff, the highest point.

### Contraction Varies

A given length delivered by the front rolls is shortened by contraction; but in calculations for twist, percentage allowances for contraction are seldom used. As a practical matter, mechanical draft is adjusted slightly higher than the actual draft to offset contraction.

In one test, the contraction range was found to be from 1% for low filling-twist multipliers to 3% for 4.75 warp multipliers, but the percentages varied too much on the same yarn to make up a table of contractions.

| Twist gear | 1,341 constant (includes allowance) | 1,379 constant (no allowance) | Difference |
|---|---|---|---|
| 40 | 33.53 (tpi) | 34.48 (tpi) | 0.95 (tpi) |
| 50 | 26.82 | 27.58 | 0.76 |
| 60 | 22.35 | 22.98 | 0.63 |
| 70 | 19.14 | 19.70 | 0.56 |

Prints of this illustration in black and white suitable for line reproduction for use in your advertising, available free on request.

**A FACT:** In 1953, 18 per cent of the full-fashioned stocking machine sections in use in the United States were 48-gauge or coarser. (Textile Machine Works, 1953 Statistical Survey)

In the hosiery industry, the one unyielding force is obsolescence. Compare the production of your least efficient machinery with a "Reading 100" Full-Fashioned Knitting Machine—in courses per minute, dozens per hour, salability of fabric. The "Reading 100" is not only a fast multiple-section machine, but it is also a reliable one . . . speed without interruption. And with every Reading Machine you get the benefit of Textile Machine Works' engineering help, service and technical experience. Let us present the "Reading 100" story in your office, at your convenience. Write us today.

**TEXTILE MACHINE WORKS, READING, PENNA.**

*The* "READING 100"
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# Continuous DIRECT DYEING of Rayons?

- ▶ Vat-dyeing methods applied to direct dyes would solve many problems
- ▶ Re-evaluation of old dyes and development of new ones could open up many possibilities

**Q. What are the advantages to be gained by dyeing rayons continuously with direct dyes?**

A. It eliminates loading and unloading time on jigs or becks. There is less loss of fabric from jig-ends, considerably less labor cost, less steam consumption, and generally less chemical cost for dyes and assistants. Irregularities in yarn and construction that give unlevel results in batch dyeing, where actual dyeing takes place in the bath, are minimized in continuous processes because only mechanical application of the color occurs at the pad and actual dyeing occurs later in the fixing bath.

In addition, variation across the piece and variation between batches in a lot are eliminated or at least greatly reduced in continuous dyeing.

**Q. Can existing equipment such as is used for vat dyes be used?**

A. Probably, or at least in part. It will depend on what is available. The existing vat-dyeing systems are:

The Du Pont pad-steam method.

In this system, the goods are padded in the dyestuff, which is generally in the reduced state for light shades. The goods pass through a steaming chamber for 10 to 20 secs, where the dyeing is completed. Oxidation and washing baths follow. Heavy shades are padded on in pigment form and dried. They then pass through a cold reducing bath and into the steaming chamber and are finally oxidized and washed.

The Genray process of General Dyestuff Corp. consists of padding in pigment and running the fabric into hot reducing liquors and dyes contained in two Williams units. Continuous feeding of reduction materials and dyes is maintained. The usual oxidation and washing methods follow. Speeds are somewhat slower than by the pad-steam process.

This method is also used in the hot-oil process, in which cloth impregnated with reduced dye is run into Williams units containing hot mineral oil. This oil vaporizes the water, and the steam-oil emulsion completes the dyeing.

The Standfast method employs a molten-metal bath to complete the dyeing of cloth padded in reduced dyestuffs that float on the molten metal in the entering arm of a U tube. The metal acts as a squeeze and an air excluder and can be accurately controlled as to temperature.

A more recent development is the Bond machine, in which the dye liquor is forced through small orifices in metal plates onto both sides of the cloth as it passes between the plates. There is provision for control of temperature, pressure, liquor flow, and cloth tension.

**Q. Has anything been done in dyeing rayon continuously?**

A. Yes. One method consists of padding the direct color onto clean, dry goods and steaming the goods for 5 to 10 mins. This fixation time is much longer than is needed for vat dyes and indicates the need for a steaming chamber capable of carrying considerable amounts of cloth. Careful selection of dyes is necessary, and the range is limited at present to light and medium shades. Dyestuff solubility, rate of fixation, and variations in affinity all have to be considered.

**Q. How about control of time, temperature, and speed?**

A. Control of these factors is absolutely necessary. In addition, equipment must be in good condition. A worn pad or one with unequal pressure from side to side will give trouble.

**Q. Can the same dyes be used that are now used for batch processes?**

A. Probably some of them will be all right, but most likely other dyes not considered good for batch processes will be found to be more suitable. Many dyes of very low affinity and others with very rapid exhaustion rates have been discarded for use in batch processes. Among them may be found dyes that would work well in a continuous process.

**Q. How about fastness? Can today's requirements be satisfied by dyeing with direct colors?**

A. In some cases, yes. However, the fastness is usually obtained by using direct dyes aftertreated with copper compounds that attach to the dye molecule.

**Q. Can these compounds be used in continuous processes?**

A. Generally speaking, no. They were developed for batch methods. They change the shade considerably upon aftertreating, and a further change occurs if the fabric is given a crease-resistant finish.

**Q. What is needed to develop the continuous dyeing of rayon with fast colors?**

A. New dyes, or old dyes now considered worthless for batch process; high solubility; and either a rapid dyeing rate or a very slow dyeing rate are indicated. If fastness can be achieved only by aftertreating, dyes are needed that do not change shade in that process. Dyestuffs can be conceived that may be fixed in a combined aftertreating and resin-finishing bath. Such products must be easy to control in application, and the costs must be somewhat less than batch or vat methods if continuous dyeing with direct colors is to prove attractive.

*Based on a paper by P. A. Holt presented at the International Congress for Man Made Textiles in Paris, France.*



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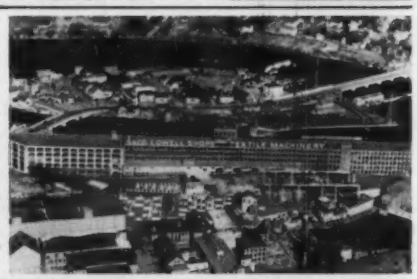

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## POINTERS for SUPERVISORS

**In your dealings with employees, don't overlook the importance of your own skill and knowledge of the jobs they have to do. If you demonstrate it the right way—**

# *Your Technical Know-How Can Win Workers' Respect*

By N. H. POMFRET

ALMOST EVERY TEXTILE-MILL SUPERVISOR finds that he has more trouble dealing with people than with either machines or materials. This discovery often comes as a rude shock to a new supervisor in his very first days on the job. He has been thinking about his new position in terms of operating details, but he often finds that his first and biggest problem is the fact that his workers are not willing to accept him as their boss.

They may resent him because they feel the company picked the wrong man. If he is an outsider, the employees may feel that one of their own group was more suited to the job. If he is one of their group who has been promoted, they may be disgruntled because they were passed over.

Whatever the reason, or fancied reason, for the resentment, most new supervisors have to overcome a certain amount of resistance from some of their workers.

### How To Show Who's Boss

During this period, when he is fair game for any employees who are trying to prove he is the wrong man for the job, a new supervisor has a choice between two very different courses of action: he can either assert his authority and try to enforce rigid rules that will prove he is boss, or he can try to win his employees over and make them want him for a boss.

The smart supervisor chooses to persuade his workers, rather than to force them to accept him. He decides that he must lead, not drive. But even after he has made that choice, he usually finds that he doesn't know how to put it to work.

This is the point in the average new supervisor's career when he starts to give serious thought and study to personnel relations. He reads everything he can find that will help him understand his employees and how to deal with them and their problems and the problems they make for him. He listens to older and more-experienced supervisors who have been through the same routine and have learned at least some of the answers.

But it is not an easy time for him. He is having to learn a new skill—the art of handling people—that may not come easy. At the same time, he is having to deal with all the operating details of his new job and to keep production and quality up. He may make mistakes and get discouraged, particularly if he finds that winning his workers' respect and acceptance is a slow business.

### Why a Supervisor Is Chosen

This difficult breaking-in period can be made easier for the supervisor who remembers one primary fact: He has a high degree of technical skill that will, if he demonstrates it the right way, impress his operators. He will find that he can overcome resentment and gain the respect and cooperation of his workers by teaching them how to do their jobs better and easier.

If his self-respect has been bruised by hostility from his workers, he should ask himself a pertinent question: "Why was I chosen for this job?" In nine cases out of ten, he will find that it was because:

1. He had acquired the necessary technical knowledge.
2. He had proved himself loyal to the company.
3. He had shown that he had the enthusiasm needed to carry out the work.

These three attributes are necessary for the making of a good supervisor. To them must be added the ability to get along with people, but he must not let his workers lose sight of the fact that he is also a skilled workman. He must keep the accent on technical ability, enthusiasm, and loyalty.

### The Importance of Technical Know-How

The supervisor has something to offer to the company in return for his pay. He should also have something to offer to the machine operators in return for their cooperation and loyalty. He can get enthusiasm by being enthusiastic himself. It is infectious.

Good manners and the ability to talk and get ideas over to operators is fine so long as the ideas are technically sound. If his ideas are not sound, his ability to influence his workers can be disastrous.

Consequently, the supervisor, must know more about the processes and the materials of his department than anyone else. He must keep up to date on current developments and direct his superiors' attention to any new ideas, theories, or machines that may help produce a cheaper or better-quality product. He must be able and willing to teach his operators something about their jobs. Nothing is more conducive to good personnel relations than the supervisor's consideration for the operators' difficulties, especially if this consideration is coupled with the ability to help, either by advice or demonstration.

It would be fatal if the supervisor were to show off or gloat over an operator every time he exhibited his superior skill or knowledge. Such an attitude would have the worst possible effect and would keep the operators from seeking

ability, or experience can be most usefully employed. Difficulties in processing should be prevented by technical skill —a far better way than trusting to charm and persuasion to

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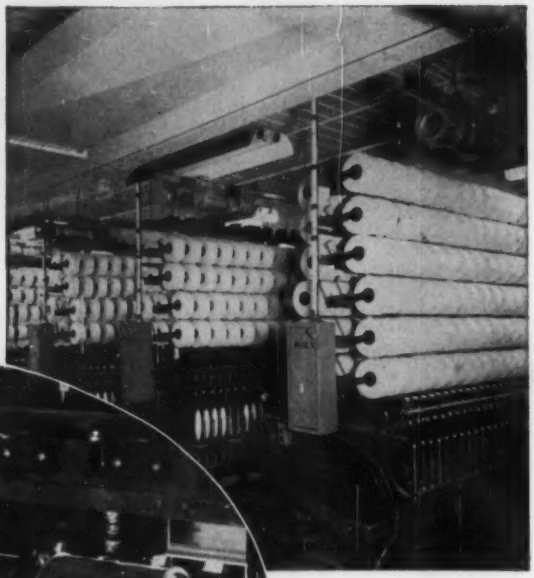
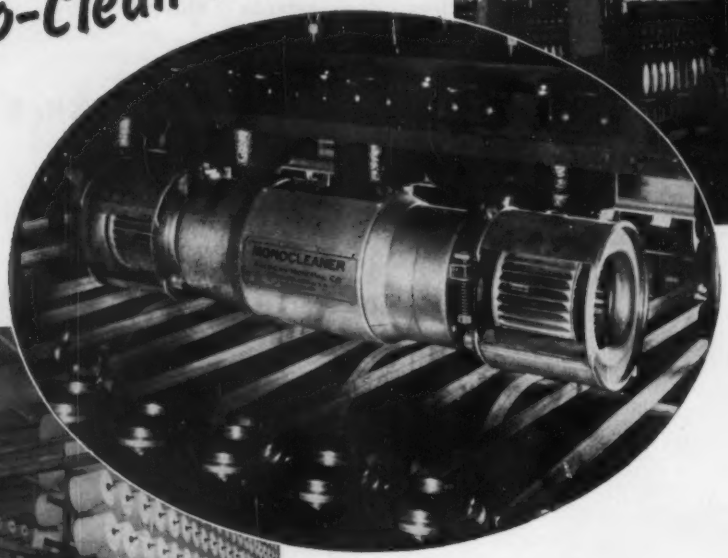
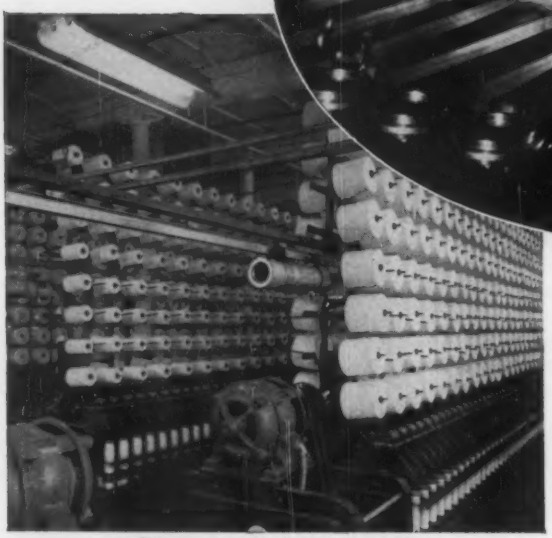
## *Hard-to-Clean Areas*



Cleans ceilings under low headroom conditions.



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gloat over an operator every time he exhibited his superior skill or knowledge. Such an attitude would have the worst possible effect and would keep the operators from seeking the advice of their supervisor—the person most capable of giving it.

Rather, the supervisor should encourage operators to seek advice and instruction. He should expect them to ask for his help and to be prepared to give it freely. In addition, he should be constantly on the lookout for situations that may arise within his department where his knowledge, ability, or experience can be most usefully employed. Difficulties in processing should be prevented by technical skill —a far better way than trusting to charm and persuasion to get operators to put up with poor working conditions.

The new supervisor can help himself over his troublesome beginning if he can learn to see his problems in the right light. And an understanding of the importance of his own technical know-how can help him carry his burdens like an old hand: always trying to solve them, always thinking about them, but never worrying.

## Lighting Maintenance

CONTINUED FROM PAGE 93

cate heel-matching during seaming, and here small Dazor adjustable fluorescent units serve as auxiliary lights.

The seaming and inspection department works only 8 hrs. per day, five days per week; so systematic lamp replacement is required only about every two years. Aluminum reflectors and lamps are cleaned with Glass Wax every three months. However, if cleaning is neglected for longer periods, the lights may lose 40 to 50% efficiency.

In the seaming department, as in the knitting department, lighting efficiency has been increased by lowering the fixtures, in this case from 7 ft. to 6 ft., 2 ins. More light is available and more is reflected under the sewing-machine head, eliminating the shadow present when the higher installation was used.

### White Overhead Helps

Lighting is also increased by an eggshell-white overhead and walls painted a pastel shade of green with a 4-ft. dado of pea-green. The normally black cast-iron table legs have been painted a bright enameled pea-green to decrease shadows underneath the table tops and prevent accidents and complaints of eye fatigue.

The boarding and preboarding department is equipped with approximately 90 units of Westinghouse continuous-strip fluorescent fixtures with two 40-w. Daylight lamps each. Direct-diffusing reflectors supply about 54 ft.-c. for general lighting. Round-the-clock operation requires light-fixture cleaning every 90 days.

The storage and finishing departments are equipped with about 150 units of two-lamp Silv-A-King fixtures with 40-w. Daylight lamps. The light-fixtures supply approximately 52 ft.-c. and are mounted 8 ft. high on 8-ft. centers. Light intensity is checked with a light meter to determine the time for lamp replacement and fixture cleaning.

The general offices are lighted by Westinghouse Magnalux incandescent fixtures with 300-w. frosted bulbs. Broad picture windows also offer abundant daylight. These fixtures require cleaning every 30 days by our Glass Wax process.

### Painting Schedule Followed

The mill has found that a good painting schedule should go hand in hand with an effective lighting-maintenance program. Here, both programs are the responsibility of the maintenance supervisor in addition to his other duties in the plant.

Daylight fluorescent lamps are preferred to the 4,500-degree White or the less-efficient Soft-White lamps. A light-meter test in the gray-inspection department revealed only 54 ft.-c. on the inspection forms when Soft-White fluorescent lamps were used. Defects missed by the inspectors were found to average more than 10% on reinspection. When the Soft-White lamps were replaced with Daylight lamps and the aluminum reflectors were cleaned with Glass Wax, lighting intensity was increased to 92 ft.-c. and the missed defects dropped to 1.1%.

## 1954 Cotton Crop

CONTINUED FROM PAGE 79

10,000 bales or more, except in a few cases. Results are published monthly (from July to January) by the Research and Testing Div., Cotton Branch, USDA. A summary report is published after all samples have been received.

Test lots are collected at the classing offices of the Cotton Branch from Smith-Doxey classification samples of even-running grade and staple. Samples of the predominating grade and staple received at the time of the lot selection are used for the test. Each lot is represented by 20 to 40 bale samples, or 5 to 7 lbs.

Samples were collected from 104 areas in 1948; 105 in 1949; 109 in 1950; 112 in 1951; 110 in 1952; 111 in 1953; and about 114 in 1954.

### How Tests Are Conducted

Fiber and spinning tests are conducted at College Station, Tex., and Clemson, S. C., on samples representing early, mid- and late-season harvestings.

Small pinches of fiber from each bale sample in a lot are collected at the spinning laboratory and composited for fiber and soluble-sugar tests. Representative samples are also collected for Shirley Analyzer tests, and the cleaned lint is used for color measurements.

Cottons representing most staple lengths grown commercially are included in the study. Since the bulk of the cotton grown in this country now falls in the staple-length range of from 1 1/32 to 1 3/32 ins., a study of the spinning qualities and fiber properties of this group gives an indication of the quality of the crop from the sections growing these lengths. This group was selected because a good representation from all Cotton-Belt states falls in this length range, and because of the large bulk of this range.

Length and length uniformity are measured by the Fibrograph, strength by Pressley test, and fineness and maturity by the Causticaire method. Only strength and fineness are considered in this report.

The lots in this study were spun into 14s to 60s carded yarns and then tested for skein strength and appearance grade.

## Roof Maintenance

CONTINUED FROM PAGE 100

the roof is tight under this condition with no holes in the vapor barrier or the roof itself, the pressure may bulge or blister the roof.

These blisters can be prevented two ways: (1) by placing vents under metal copings or through vertical joints left open in masonry walls and (2) by providing breather ventilators to the outside air.

**5. Metal roofs.** Nails frequently become loose or rust out on metal roofs. The nails should be driven up or replaced and a mastic coat applied over the cracks. If leaks appear in the seams, the seams should be nailed tight and a coat of mastic compound should be applied over the top of the seams. A leaky metal roof can be made watertight with an application of suitable roof coating.

# SKY HOOK NEEDED?

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In a less dramatic way another new machine is making news—and profits—as a replacement of older equipment. VanVlaanderen's versatile DYE-MASTER JIG is the first American machine designed for ALL FABRICS — cotton, silk, synthetics and blends. It gives high production and top quality for **all** constructions from sheers to cotton ducts.

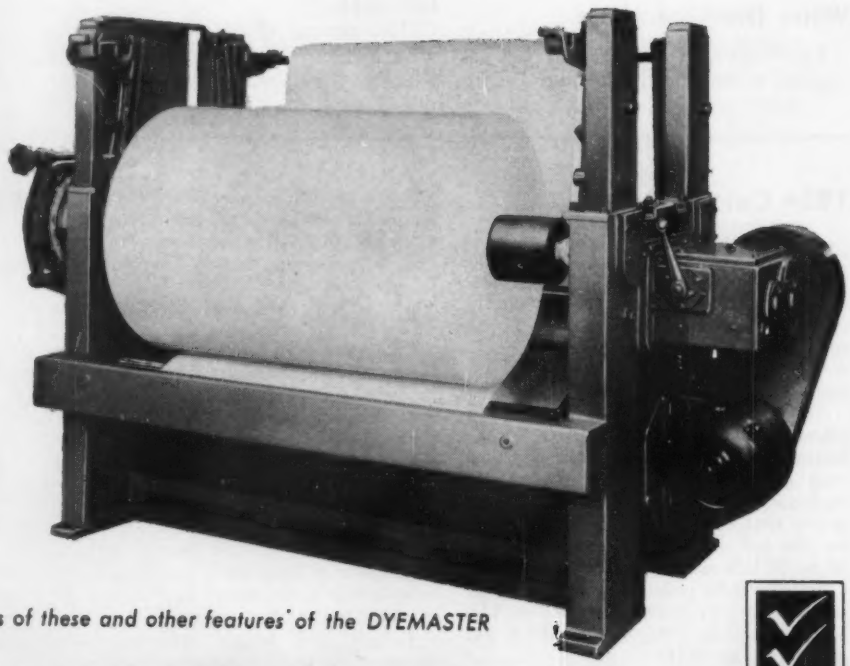
The DYEMASTER'S versatility is made possible through Van Vlaanderen's know-how in jig design and manufacture, which give this machine:

**CONSTANT CLOTH TENSION** which can be pre-set for practically no tension or for any tension up to maximum.

**CONSTANT CLOTH SPEED.** The DYEMASTER achieves near-constant cloth speed through a special differential transmission — greatly contributing to even dyeing.

**AUTOMATIC CONTROL** which can be pre-set to control reversing and stopping.

**Power Loading and Unloading** is an exclusive feature of Van Vlaanderen jigs.



*Write for folder giving full descriptions of these and other features of the DYEMASTER*

MACHINE COMPANY

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## EQUIPMENT AND SUPPLY NEWS

# EQUIPMENT and SUPPLY NEWS

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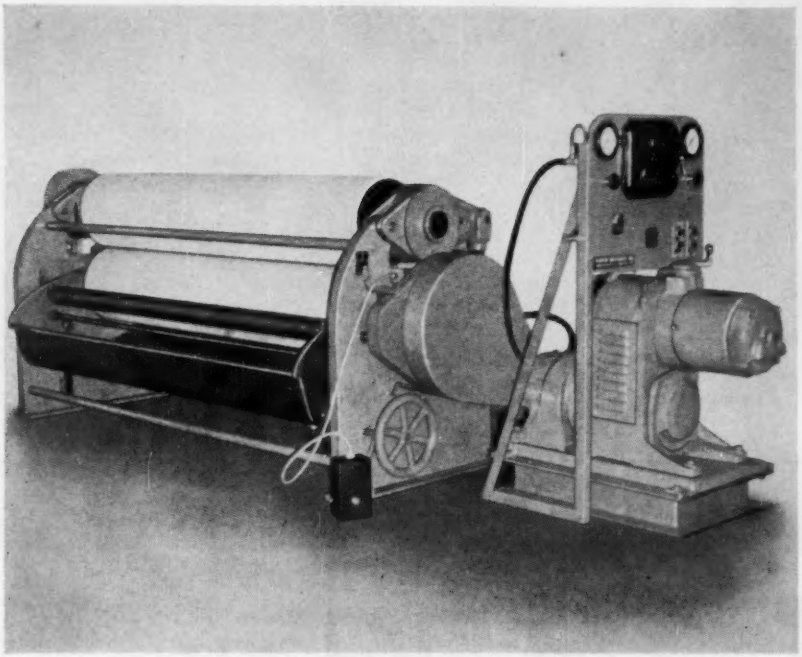

## Two-Roll Mangle

Birch Brothers, Inc., Somerville, Mass. has announced a new two-roll sizing mangle or padder. The machine frames have a heavy welded construction, and the pair of rubber rolls or rubber-and-stainless-steel rolls are mounted in self-aligning roller bearings.

Pressure is applied by air cylinders to any degree desired on each end of the top rolls. Gauges register the actual pressure applied; so the actual pressure can be checked at any time. A uniform or unbalanced pressure can be maintained.

The machine is fitted with a stainless-steel pan with three immersion rolls, and the pan is adjustable in height; so the material can be immersed and run through the nip, or it can be fed straight through the nip with the bottom squeeze roll revolving in the liquor to feed it up to the material being run.

To eliminate slippage, the bottom and top squeeze rolls are geared together by a roller chain. The 7½-hp. motor drives through a variable-speed unit.

The nip is guarded by an electric eye, which stops the machine and raises the top roll when the beam is interrupted. The machine can be used for padding, sizing, resin treatment, extracting, etc. It is made in 5-, 10-, or 15-ton capacities. Widths: up to 20 ft.

Modifications can be made to suit particular applications. **(T-1)**

## Weft-Straightener Control

Fieldcrest Mills, Inc., Spray, N. C., has developed a weft-straightener control based on a new principle of bias detection. The fabrics are marked at the loom with a colorless dye that fluoresces under ultraviolet light. Two methods of marking are used: part of a quill of fluorescent-dyed yarn is woven in for ½ in. across the piece at suitable intervals, or ½x3-in. marks are stamped on the selvages at right angles to the selvage. The dye is fast to processing and does not affect dye shade.

The marks or stripes are detected by scanning units placed one on each side of the tenter frame used in final finishing. The scanning units contain a source of ultraviolet light and the photoelectric cells.

When a mark or stripe passes under the ultraviolet light, it fluoresces and actuates the photoelectric cells. If both cells receive the signal simultaneously, the signals cancel out; but if there is a variation of ¼ in. or more, the lagging side is speeded up by means of the motor attached to the differential drive on one tenter chain. Should the opposite side lag, this same chain is slowed down until the weft is again square.

The weft straightener may be set for any degree of control; and the control will work on all types of cloth, since it depends on reflection of light from the surface and is not affected by construction or weight.

Fieldcrest Mills, Inc., has licensed Cook-P&N Machine Co., Boston, Mass., to manufacture and sell the patented device. **(T-2)**

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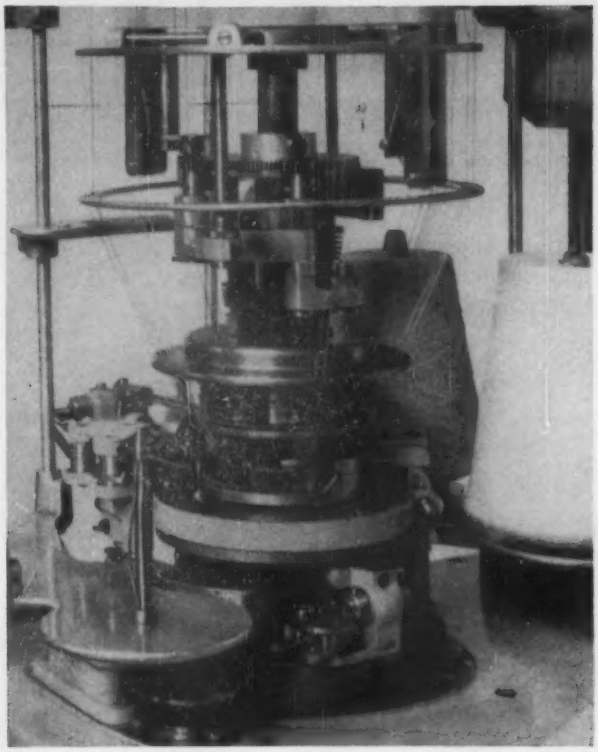
## Rotating-Cam Wrap-Stripe Machine



A feature of a new hosiery machine built by Trent Engineering Co. Ltd., Nottingham, England, is a rotating cam box that allows speeds of 170 to 180 rpm. and a wide variety of patterns throughout the knitting of the sock.

The yarn stand accommodates four large packages, each up to 6 ins. in diameter. A new-type feeder allows socks to be made from one yarn only or on a plated basis with two yarns.

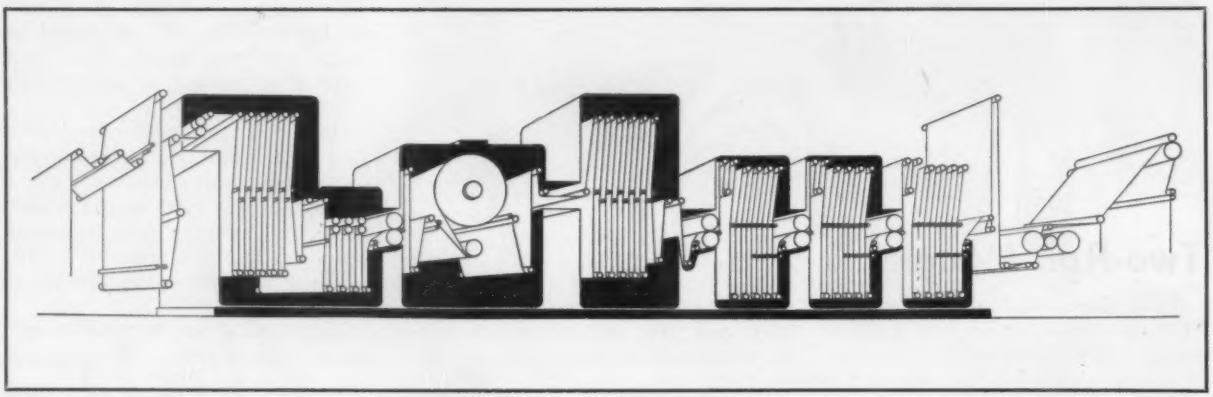
A splicing mechanism introduces splicing yarns at closely controlled points by wrapping the splicing yarns several times around the main yarn.

The pattern fingers fulcrum about their center and are mounted almost radially in the pattern head. A striping cam causes the lower end of the pattern finger to move outwards outside of the needle heads. As the cam moves away, the pattern finger returns to the normal position on the other side of the needle head to lay the embroidery yarn in the hook of the required needle.

The wrapping head can be shogged over 12 needles. The pattern fingers have 18 heights of butt. The pattern mechanism is introduced by a simple lever movement and is automatically canceled when making the heel and sole portions.

A combined head release and locking handle makes it possible to release, lower, and lock the head in position with one movement.

The Trent machine is available with 168, 176, or 200 needles in cylinder diameters of 4 ins., 3¾ ins., or 3½ins. **(T-3)**



## Desizing or Bleaching Range

A continuous processing range, said to be suitable either for open-width desizing or bleaching, has been announced by Benteler Werke A. G., Bielefeld, Germany. Capable of handling fabrics from 32 to 56 ins. in width, it will produce from 45 to 85 yds. per min., depending on the fabric being treated.

In desizing, the fabric passes between nip rolls into a steam chamber. From here, the fabric passes into a vacuum impregnating chamber containing desizing materials, where it is given three light nips and a final heavy nip, which is adjustable so that more or less liquor is retained as desired.

The next section contains a unique batching and transfer arrangement by which cloth is rolled on one roll and transferred to another so that all portions of the cloth remain in the chamber from 30 to 80 mins. as required. Continuity of flow is maintained at the same time.

Enclosed wash boxes follow the batching chamber. Spray tubes and relatively large amounts of cloth traveling vertically provide efficient washing. The number of wash boxes used will depend on fabric construction, size concentration, and type of fiber.

In bleaching, the first steamer is used to heat and open up the fabric. Impregnation with peroxide or chlorine is accomplished in the second compartment, from which the cloth travels to the batching chamber. The lay-over period is adjusted to suit the fabric.

One of the advantages claimed for this range is that steaming, impregnating, batching, and washing are all carried out under vacuum. Temperatures can be maintained exactly as wanted, and heat losses are kept at a minimum. **(T-4)**



EQUIPMENT AND SUPPLY NEWS

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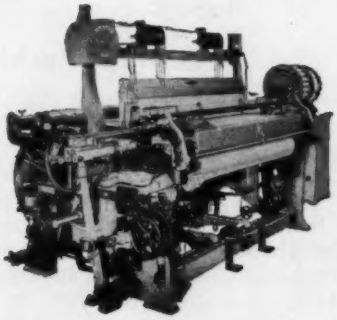

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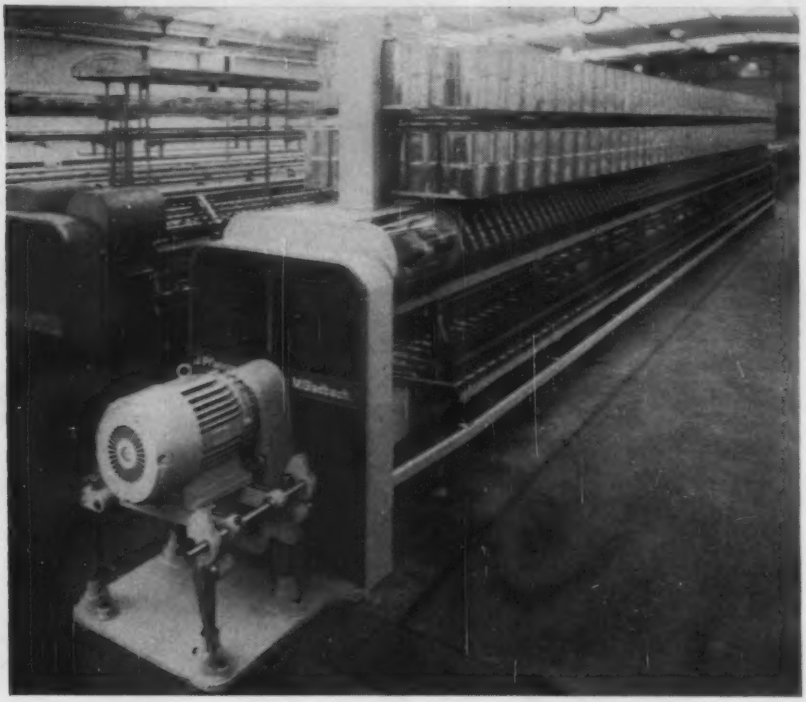


### Sliver-Spinning Conversion for Standard Frames

A new model of the drawing-sliver-to-yarn spinning frame made by Josef Pfenningsber & Co., Siemensstrasse 20, M. Gladbach, Germany, [TW, Nov, '52, p. 182], features an overhead creel for 12x12- or 12x9-in. sliver cans and a four-roll super-high-draft system. All existing ring frames can be converted to the direct system with the new creel and draft system.

Three creeling arrangements are available:

1. Nine-inch cans with single sliver can be arranged on two decks with two cans per deck—available for spindle gauges down to 2⅜ ins.
2. Twelve-inch cans with double sliver (split at drawing frame) can be arranged on two decks with one can per deck—available for spindle gauges down to 3⅛ ins.
3. Twelve-inch cans with double sliver can also be arranged on two decks with one can on the bottom deck and two cans on the top deck—available for spindle gauges down to 2⅜ ins.

Each sliver can holds 1.2 kg. (about 3,240 grains), which gives a package two or three times the size of a normal roving-frame bobbin.

A special truck with two decks facilitates creeling; and at the drawing frames, the cans can be stacked to save space. The only alteration to the drawing frames is to provide a high support for the small cans.

The four-roll draft system has two upper aprons, and the sliver is guided in a long curve around the bottom roll. The top roll is spring-weighted, and a reversing rail has a flexible mounting that gives with fiber traction.

With this system, the drafting element has a wider application on short, medium, and long fibers. **(T-5)**

### Picker Improvements

Picker modifications designed to prevent hard ends and to improve evenness of the first few yards of a lap have been developed by Aldrich Machine Works, Greenwood, S. C.

To give closer control of lap tension behind the calender rolls, the third calender roll is driven by a chain instead of a gear. With the chain, speed can be adjusted to the equivalent of one-quarter of a tooth on the conventional gear.

To give more-uniform laps and to reduce doffing time, the fluted rolls stop when the calender rolls stop. The lap is broken as it is doffed when the operator rolls it back slightly on the rear fluted roll.

To oil the lap pin uniformly, a canvas sling with an oil reservoir is fitted to the picker front. The operator gives the pin a twirl in the sling as he places it in position. Pin oiling is said to be much more uniform than with mill-made devices.

To throw the lap pin back into position, there's a lifting lever that is quick to operate and prevents damage to the inside faces and the fluted rolls.

To make the first few yards of lap the same weight as the rest of the lap, there's a locking device on the cone belt. The evener motion then doesn't give a false signal because the fingers had a chance to press into the lap while the picker was stopped. **(T-6)**

### Carpet Opener or Spreader

A patent has been assigned to Birch Brothers, Inc., 32 Kent St., Somerville, Mass., for a stainless-steel conical opener or spreader and guider for use on tufted carpeting being dyed in kettles. The device keeps the carpet free of wrinkles and central in the dye kettle. It can also be used ahead of squeeze rolls and continuous ranges. Widths: 3 to 20 ft.

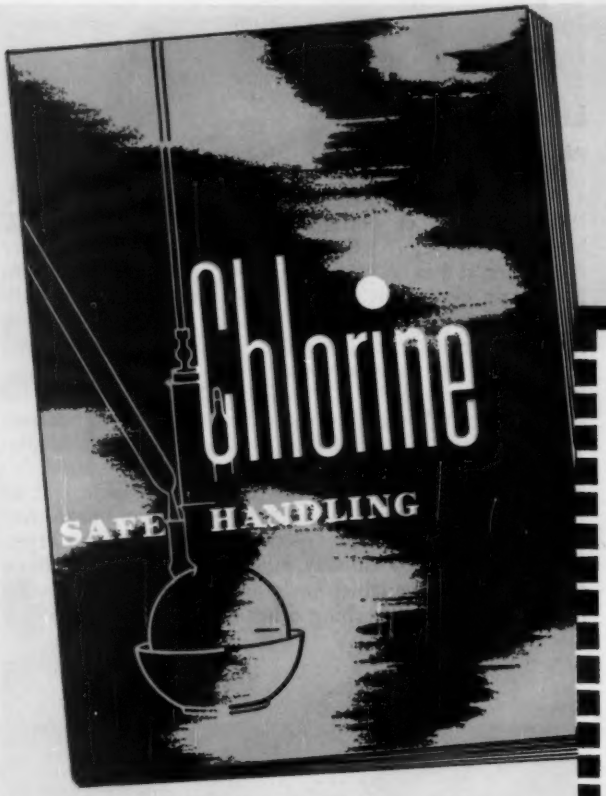
Construction is stainless steel throughout; rolls are mounted on ball bearings; and electric brakes with an electronic control are provided. When the selvage touches a feeler, the control circuit actuates the brakes on the shifted side; and the fabric shifts in the other direction until contact is broken. **(T-7)**

### Tufting Machine

A 208-in. tufting machine is available from Super Tufter Co., Inc., 212 First Ave., North, Fort Oglethorpe, Ga. The machine is equipped with a dual drive, which is directly connected to the main shaft, and a yarn feed. It produces full-room-size floor coverings and rugs of smaller sizes with a cut pile, short loop, or long loop. **(T-8)**



EQUIPMENT AND SUPPLY NEWS

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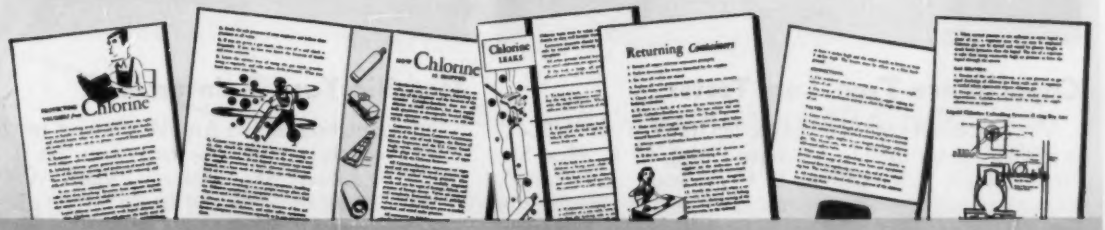


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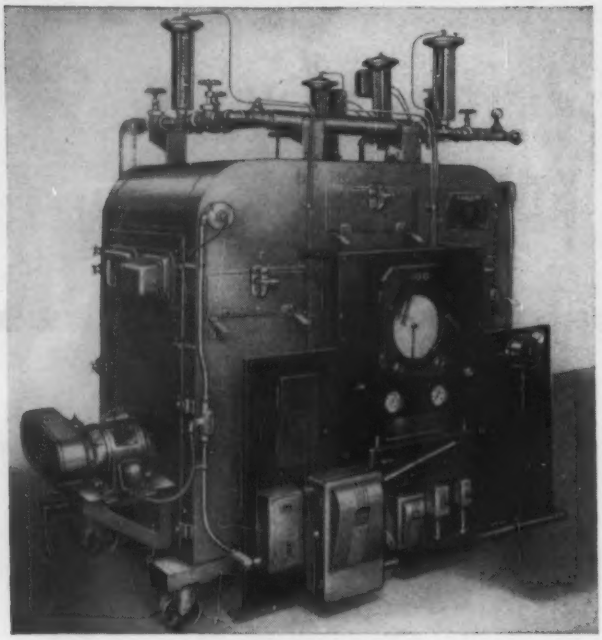
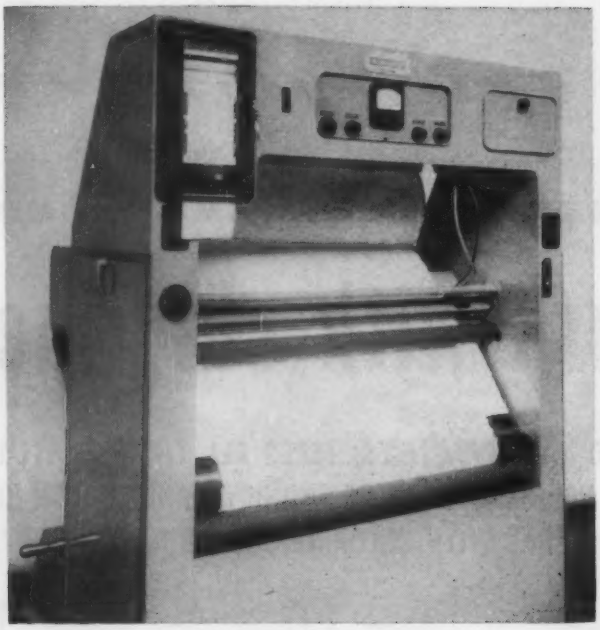


## Laboratory Dryer

A portable, self-contained dryer is available on a rental, rental-purchase, or outright-purchase basis from C. G. Sargent's Sons Corp., Graniteville, Mass. This new dryer is full size and is fully instrumented. It uses either steam-heated or electrically heated air. The heavy-duty ball-bearing casters lock securely when the dryer is positioned. After the steam and electrical connections have been made, the dryer is ready to use.

Designed primarily as a research laboratory dryer for pilot plants and laboratories, wherever drying processes exist, the dryer is particularly useful where quick adaptability to variables in materials or methods is required.

The dryer is equipped for tray drying or for pole, roll, or plate drying. Gauges, valves, control and recording instruments, and charts are mounted on the face of the dryer. It may be operated manually, automatically, or in combination; and each variable, including air velocity, can be changed without disturbing other factors. (T-9)

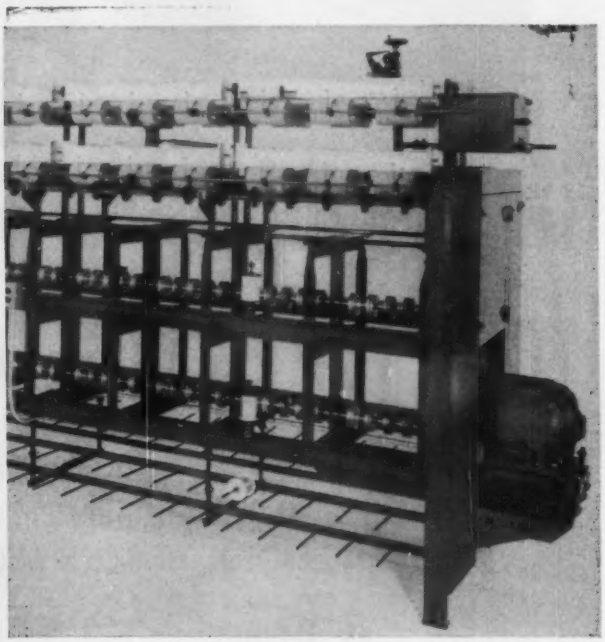


## Capacitance-Type Lap Tester

The Ingolstadt capacitance-type lap tester, Type WPG 2, is available from Stellite American Corp., 60 E. 42nd St., New York 17, N. Y. Laps up to 45 ins. wide can be tested. The measuring condenser consists of a bar-shape measuring electrode and a rotating counter electrode. Fluctuations in lap weight are summed for the entire width of the lap.

The recorder is mounted on top of the frame.

The tester can be used to (1) determine the place of periodic faults, (2) rate the degree of lap disintegration, and (3) test the degree of cleaning. The diagram gives a picture of lap evenness; and in addition, diagrams can be analyzed more closely with an optional instrument. (T-10)



## Metallic-Yarn Reinforcer

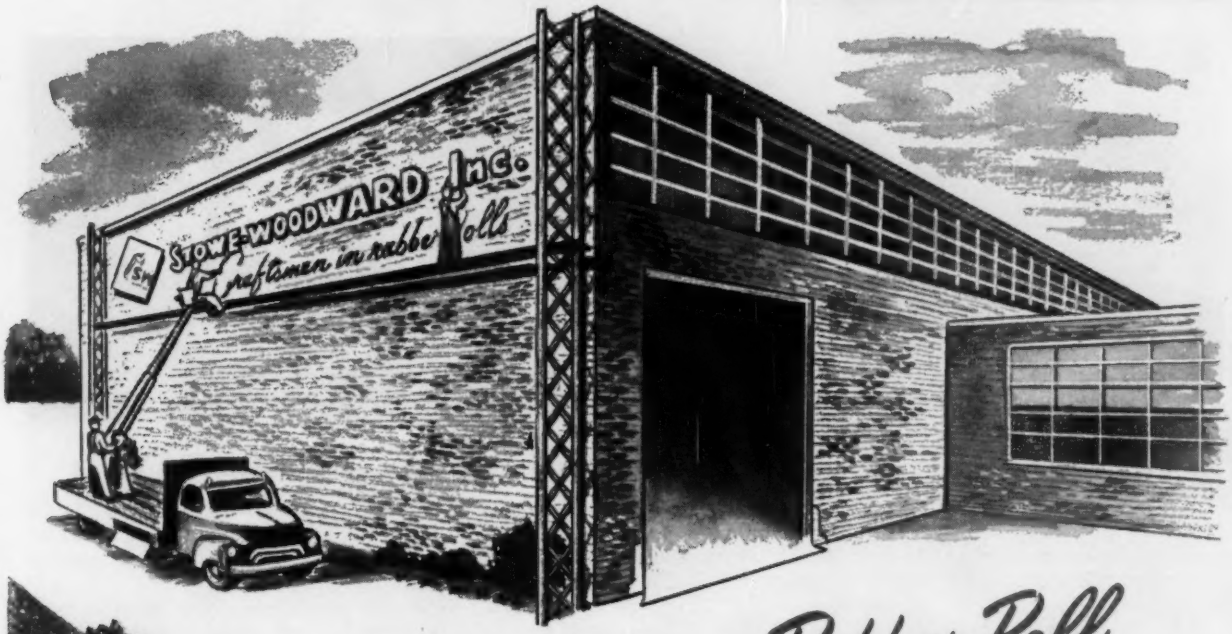
An adaptation of the Arnold covering machine is available for reinforcing metallic yarns from H. H. Arnold Co., Inc., 529 Liberty St., Rockland, Mass. A 48-end frame is used instead of an 80-end frame to get a larger package. The frame has a parallel-tube or 3°30′-cone take-off with a pineapple winding attachment and two core holders per end.

The main difference between the frame for metallic yarn and the regular rubber-thread-covering machine is the material holders. A simple rack with stationary pins is used, and the rubber-feed wheels above the rack have been removed.

The same hollow spindle and the same flyers are used. (T-11)

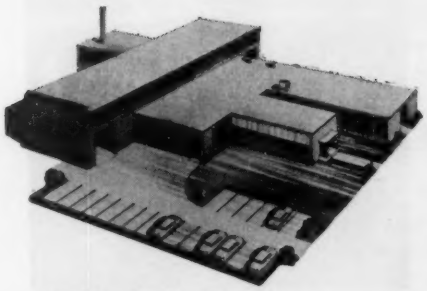


EQUIPMENT AND SUPPLY NEWS




# Rubber Roll Signs of PROGRESS

## in GRIFFIN, GEORGIA



Architect's drawing of Stowe-Woodward's new Griffin, Georgia plant scheduled for operation January 1955.

There's more to the sign above than meets the eye . . . for this is a sign of progress . . . progress that means better service to the great Paper and Textile Industries of the South.

Griffin, Georgia, in the heart of the industrial South is the home of Stowe-Woodward's new plant, to be in operation in January 1955.

The most modern roll covering plant in the world, it is designed specifically for the unusual requirements of Rubber Roll manufacture, and will be equipped to handle the largest rolls in use today and tomorrow.

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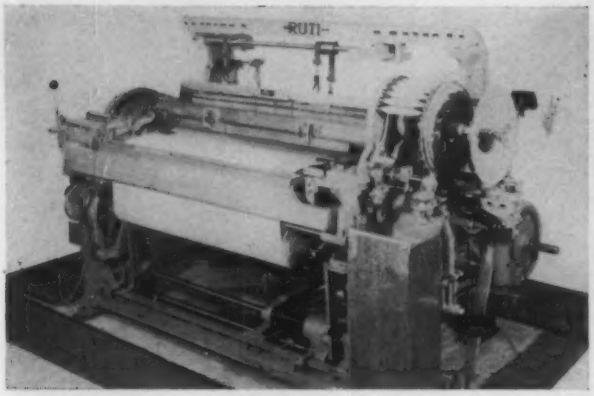
Butterworth Laboratory Continuous Vat Dyeing Range.

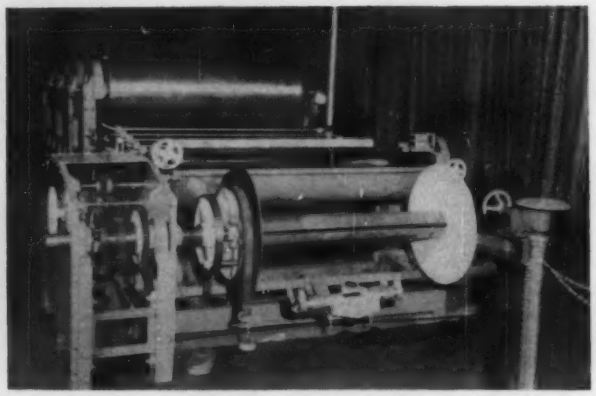
## EQUIPMENT AND SUPPLY NEWS




### Single-Shuttle Loom

High speed with little mechanical attention is said to be possible with the Bal single-shuttle cotton loom developed by Ruti Machinery Works Ltd., Ruti/Zurich, Switzerland. Forty-two-inch cloth with 3,040 ends will weave at 220 ppm.

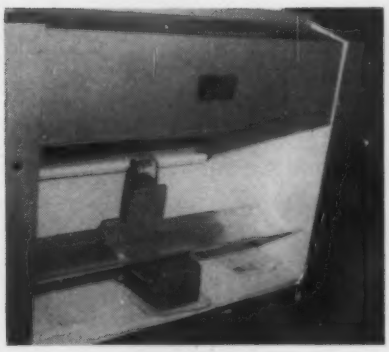
The loom has a 27½-in. beam, side-fork filling stop motion, mechanical feeler, and roll-and-shaft harness motion. (T-12)



### Slasher for Spun and Filament Yarns

An all-electric drive is a feature of the multicylinder slasher developed by West Point Foundry & Machine Co., West Point, Ga. The slasher can also be furnished with mechanical tension control.

The slasher is said to satisfactorily size yarns of both spun fibers and synthetic-filament fibers, and the wind-up of the loom beam packs on more yards of either type of yarn. (T-13)



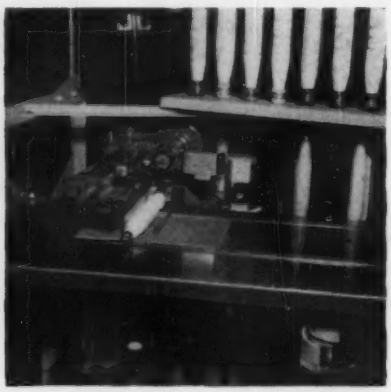
### Lap Tester

The lap tester developed by Precision Gear & Machine Co., Charlotte, N. C., indicates variation yard for yard throughout the length of lap taken from a picker; and an electrically controlled, gear timing mechanism cuts off a predetermined length of lap. A Toledo Speedweigh scale is used for weighing. Major shafts are mounted on ball bearings. (T-14)

### Hopper Feeder for Waste

A hopper feeder to replace hand feeding of waste machines is available from Kirkman & Dixon Machinery Co., Greenwood, S. C. The lattice apron and doffer in the feeder pre-opens the stock, prevents chokes, and insures more-uniform feed.

It is equipped with ball bearings throughout and has a magnet with an automatic loading signal. (T-15)



### Conditions Yarn at Quiller

A yarn-conditioning and bobbin-marking attachment for Abbott quillers is available from Mona Industries, Inc., Paterson, N. J. The full bobbin is dropped from the winding head onto a plush-type fabric that is soaked in conditioning liquid. The plush covers a perforated metal plate that is partly immersed in a trough of liquid.

Moisture added can be controlled between 3 and 15% by adjusting a sliding cover over the fabric or raising or lowering the liquid level in the trough.

To mark bobbins, the plush fabric is replaced with a sponge pattern and the conditioning liquid with a tinting solution. Stripes, numbers, or letters can be imprinted. (T-17)

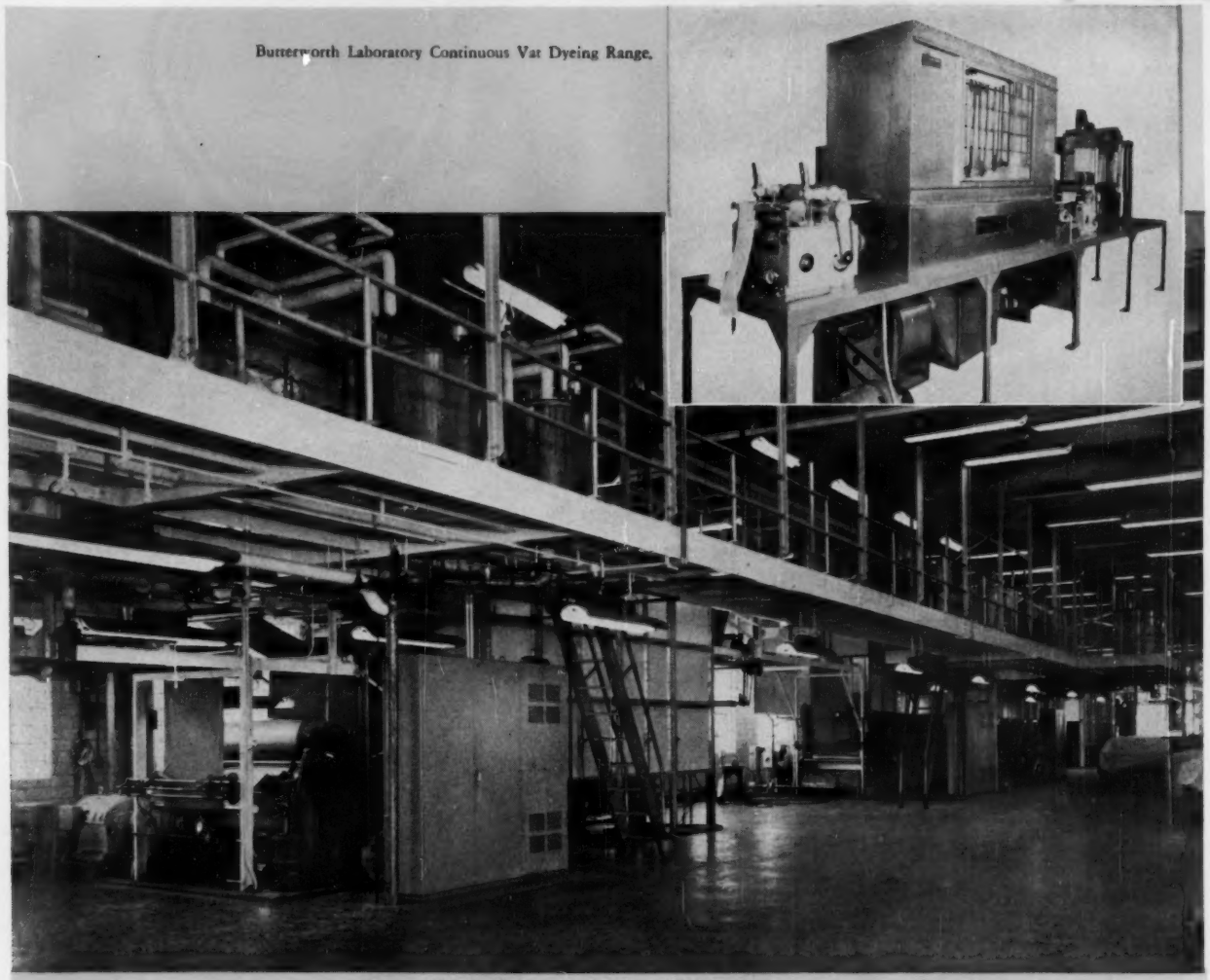
### Roberts Change-Over

An improved high-draft spinning change-over has been developed by Roberts Co., Sanford, N. C., for up to a 45 draft.

The change-over includes fully adjustable roll stands, hardened-steel top and bottom rolls, no-coil cap bars and saddles, hardened compound gearing for high- and low-draft constants, and the Roberts creel, which is a fully open, all-metal arrangement for skewers. (T-16)



EQUIPMENT AND SUPPLY NEWS



Butterworth Laboratory Continuous Vat Dyeing Range.

Full-size Butterworth Continuous Dyeing Range.

# Teamwork brought this dyeing range to life!

Butterworth teamwork has been described as "combining the request of the finisher and the demands of the chemist and colorist with the limitations of present day mechanical engineering". So far we've been successful in not letting those "limitations" get too much in the way.

For instance, take the Laboratory Continuous Vat Dyeing Range shown above... Butterworth engineers developed this equipment in cooperation with the customer's engineers and chemists. This miniature range was used to prove all principles of the full-size installation — and did it without spending a lot of money. From this laboratory range came continuous vat dyeing as we know it today — as shown in the full-size installation above.

Thinking of new machines? Making long range plans? Butterworth engineers are at your service. We'd be glad to team up with you — to help you improve your competitive position. Whether it's laboratory equipment, a full-size range, or a spare part you need in a hurry — a letter, wire or phone call will put a Butterworth engineer on your team.

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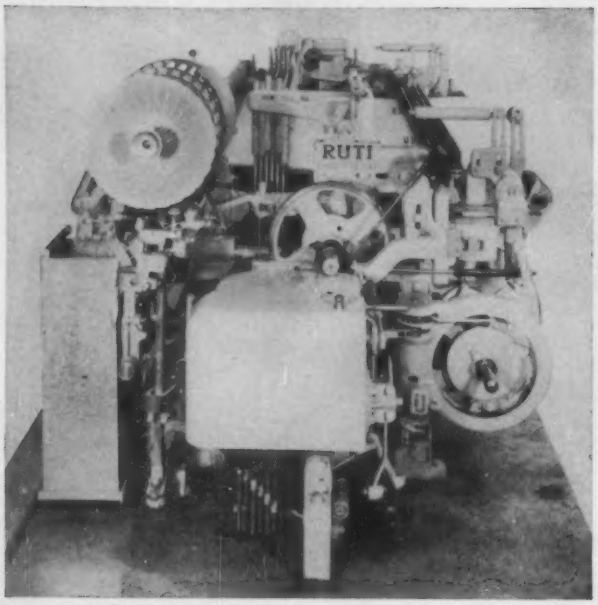
**BUTTERWORTH**

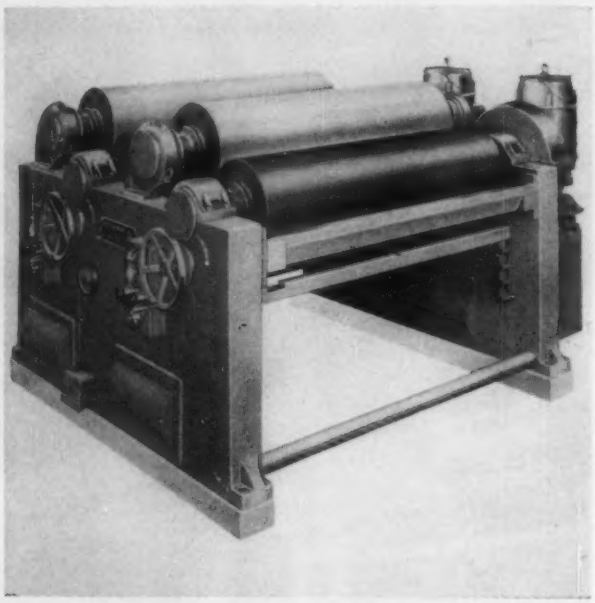



## Loom for Filament Rayons

A 120-den. filament-rayon warp can be woven at 184 ppm. on the BANLXR loom developed by Ruti Machinery Works Ltd., Ruti/Zurich, Switzerland.

The loom, with a 63-in. reed space, is for single-shuttle weaving; but it is also manufactured as a 2x1 loom for filling mixing.

The loom has a side-cam harness motion with up to eight harnesses, an electric filling feeler, and no arches. (T-18)

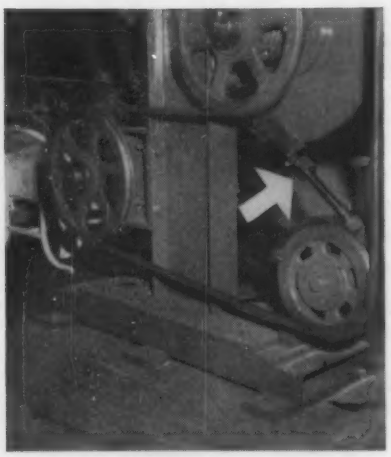


## Horizontal Pads

A new series of pneumatic-loaded padders in two-, three-, and four-bowl models is announced by Benteler-Werke A. G., Bielefeld, Germany.

All are characterized by horizontal rolls that permit feeding liquor directly into the nip. Small liquor volume is required.

A small laboratory padder of similar design [TW, Nov., '54, p. 132] is claimed to allow direct correlation of laboratory findings to plant production. (T-19)



## Drying-Can Drive

A double-face V-belt drive with pneumatic tension control (arrow) has been developed by The Textile Shops, Spartanburg, S. C., for driving cylinders. The drive can be built for any steam pressure required. Belt tension can be automatically or manually controlled. Speeds up to 300 yds. per min. are possible. (T-20)

## Comb Stock

A comb stock made of high-strength aluminum alloy with cast-iron end journals is available from Southern States Equipment Corp., Hampton, Ga. The part weighs half as much as conventional comb stocks and has twice the usual number of supporting fingers. The blade fits against a solid backing that is part of the same casting at the main stock and fingers. (T-21)

## Revolving Pin Truck

A revolving pin truck for doffing twister frames is available from J. C. Paddock Co., Spartanburg, S. C. The truck has a creel to help the operator do the job more quickly and get more packages in a smaller area.

There are two upright creels with 60 pins on each creel. Ten pins are arranged on six channel-iron uprights. A foot-operated ratchet holds the creel in one of six positions, and a rail protects the yarn and also acts as a push handle. (T-22)

## Beaming and Sewing Machine

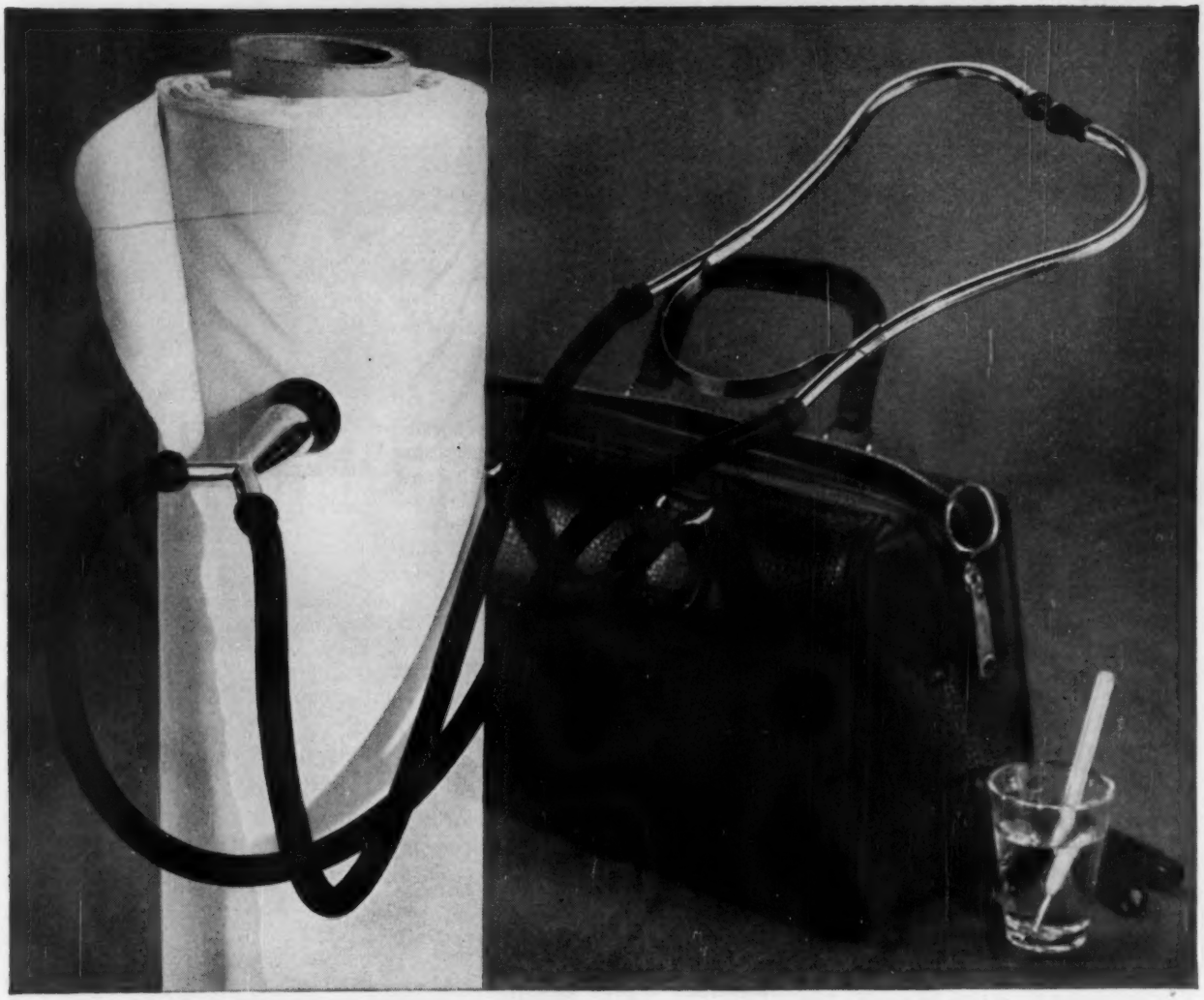
A new beaming and sewing machine has been developed by Birch Brothers, Inc., Somerville, Mass. A metal let-off scray holds small rolls of material, and a special arrangement on the scray keeps rolls from jumping out of the scray at the end of the roll.

The machine is fitted with a chain-stitch or butt-seam railway sewing machine, and the head returns to the beginning end automatically. An adjustable tension device follows the sewing machine, and then the cloth passes to a pair of driven rolls, which govern the speed tension and the density of the center-wound batch or beam of cloth.

Cloth speed is kept constant through a fluid-drive arrangement. The entering end of the machine can be fitted with a pair of guiders. (T-23)

**EQUIPMENT AND SUPPLY NEWS**

CONTINUED ON PAGE 178



# When it's time for critical examination

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# NEW DYES and CHEMICALS

### Yarn and Fabric Softener

**Nopcotex** . . . used in napping woolens. Supplied as soluble flakes or in paste form as Nopcotex R Paste, it is nonyellowing and gives static protection. Nopco Chemical Co., Harrison, N. J. (D-1)

### Tan Sulfur Dye

**National Sulfur Brown CGCF** . . . produces moderately bright shades of reddish tan. Nondusting, dissolves readily in equal amounts of sodium sulfide, can be dyed in pressure vessels, is practically unaffected by metals in the dyebath. Medium dyeings on cotton exhibit good fastness to light, washing with soap and soda at 160° F., perspiration, and mercerizing. Excellent fastness to cross dyeing, dry cleaning, and pressing. Suitable for fabrics to be rubberized. Resin finishes alter shade slightly but do not affect lightfastness. National Aniline Div., Allied Chemical & Dye Corp., New York, N. Y. (D-2)

### Blue Sulfur Dye

**National Sulfur Direct Blue N** . . . produces moderately bright blue and navy shades on cotton or rayon. May be used in iron machines without dulling. Suitable for fabrics to be rubberized or resin finished; has good fastness to light, organic acids, mercerizing, and cross dyeing; excellent fastness to alkalis, stoving, perspiration, sea water, hot pressing, and dry cleaning. National Aniline Div., Allied Chemical & Dye Corp., New York, N. Y. (D-3)

### Finishing Resins

**Vinrez 101** . . . a polyvinyl-acetate emulsion of very small particle size used for a binder or rug underlay and as a spray for the embossed face of rug cushions to help retain the impressions; also used in manufacturing wool felt pads. Vinrez 202 is a polyvinyl-acetate emulsion used to give body to fabrics. May be used with all synthetic and natural softening materails. Stein, Hall & Co., New York, N. Y. (D-4)

### Printing-Paste Thickener

**Keltex S** . . . a printing-paste thickener that does not require buffers; will work in all printing pastes containing the usual amounts of caustic without losing consistency or gelling. It is claimed to give improved color yield and excellent sharpness of pattern line. Kelco Co., New York, N. Y. (D-5)

### Resinous Water Repellent

**Ranedare R** . . . a durable resinous water repellent used with thermo-setting resins to produce water-repellent, crease-resistant, shrink-resistant finishes. May be used on rayon and rayon blends, nylon, acetate, and silk.

Supplied as a thin emulsion readily miscible with other commercial resins to provide a variety of finishes. Water-repellent effects are claimed to withstand repeated launderings or dry cleanings. Metro-Atlantic, Inc., Centredale, R. I. (D-6)

### Embossing and Finishing Resin

**Emboset B** . . . particularly recommended for durable embossed and glazed effects on cottons and shrinkage-resistant and crease-resistant finishes on spun rayon. Gives a soft hand but may be used with the usual stiffeners for a variety of finishes that are durable to laundering. Metro-Atlantic, Centredale, R. I. (D-7)

### Polystyrene Emulsion

**U-2001 Ubatol** . . . a modified polystyrene emulsion of extremely fine particle size applicable to textiles as a nonfraying finish, a semi-permanent size, or an antisoil finish for rugs and carpets. Excellent chemical stability to electrolytes, alcohol, or cationic materials and excellent mechanical stability are claimed. Films formed are not continuous, and plasticizers such as dibutyl phthalate or dioctyl phthalate may be used to modify the results. Union Bay State Chemical Co., Cambridge, Mass (D-8)

CONTINUED ON PAGE 206

## MODIFIED RESINS Improve Cotton Creaseproofing

Chemicals other than urea-formaldehyde and melamine-formaldehyde resins have been developed to give crease-resistant finishes on cotton. As an example, polymethylol melamine gives a firm and springy hand, but fabrics treated with it yellow when they are chlorine-bleached or pressed at high temperatures.

Dimethylolethylene urea gives hardly any body to fabric but gives good crease resistance. It tends to hydrolyze and give unsatisfactory chlorine retention when the goods are washed at high temperatures. However, if these materials are blended in a ratio of 2¾ mols of dimethylolethylene urea to 1 mol of polymethylol melamine in the form of a copolymer, a satisfactory finish is obtained. Yellowing of the fabric is eliminated; and if the resin is given a hard cure, chlorine retention is negligible. Variation from these proportions will give inferior results.

Hard curing is a term used to imply a higher temperature, more catalyst, or longer curing time than would normally be used. Its use is limited to materials that will not adversely affect the goods.

Migration of some resins causes trouble in finishing and can be controlled by lower drying temperatures, although at the expense of production. Infrared auxiliary drying will help in predrying equipment.

An important factor in the application of crease-resistant finishes is the alkali content of the fabric. Catalysts are extremely sensitive to small amounts of alkali; for example, 0.04% of sodium hydroxide will neutralize 0.5% of an amine-hydrochloride catalyst. The only safe approach is to sour the goods prior to resin treatment, since either mercerizing or dyeing is likely to leave traces of alkali that will seriously affect the finishing.

A pH check is not always adequate because of the effect of other salts; therefore, titration of a weighed quantity of cloth to determine the alkaline content as NaOH is safest.

*From a paper presented at the Third Chemical Finishing Conference, Washington, D. C., by Dr. Harvey Y. Jennings, Dan River Mills, Inc.*



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**D'LEINE for Dyeing**—Eliminates predyeing operation and special preparation of goods. Dyeing may be carried out at high temperatures when Dileine and dyestuff are used simultaneously in dyebath.

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Write today for complete details and specifications. If you have a particular gas fading problem our technical department would welcome the opportunity of working with you towards a solution.

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# GETTING THE MOST FROM TWISTING

Information about twisting designed to show improvements in twisting equipment and new ideas in the twisting operation

## HOW TO CENTER THREAD GUIDE UNIRAIL HEADLESS PACKAGE UPTWISTER

Today the trend is toward large packages, and the UNIRAIL® Uptwister is producing large tapered headless packages containing as much as two pounds of yarn. In order to produce these packages satisfactorily it is important that equal tapers be maintained at both ends of the package. This balanced tapering requires adequate attention to thread guide adjustments.

It is particularly important that the thread guides be centered carefully to the length of the take-up tube and also the follower in relation to the taper bar pivot. Otherwise, the package produced will be off center on the tube and will have more taper at one end than the other. It may not be possible to wind the desired weight of yarn onto a package with unequal tapers and stitches may even occur.

While all thread guides are centered when a UNIRAIL is erected here at our plant and checked again when the Uptwister is installed in a mill, it's a good practice to check the guides periodically after the machine has been put into operation.

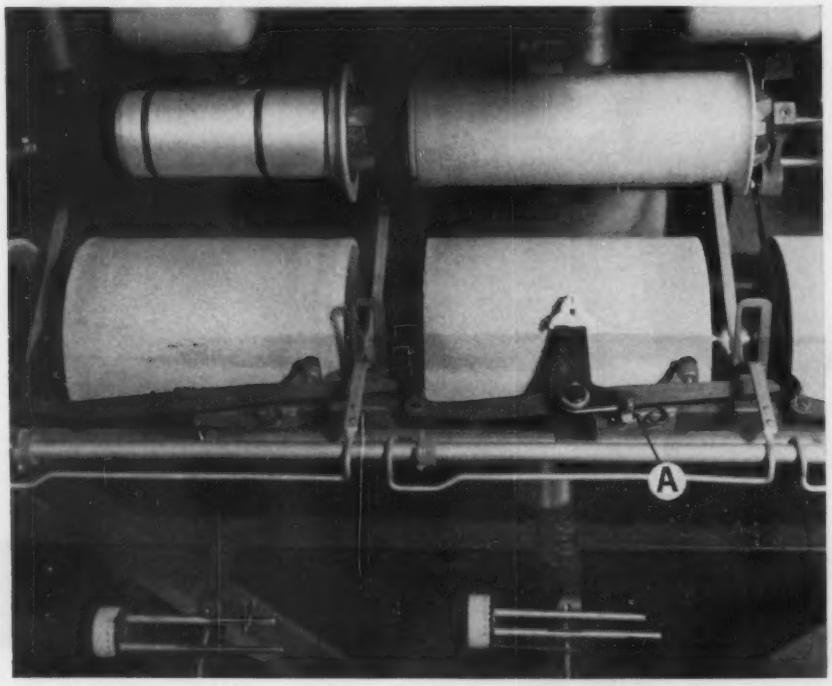



*Fig. 1*

Sometimes a guide holder assembly or a headless package assembly has to be removed from the frame for repair or replacement. When these parts are replaced the guide should always be centered.

When the guide holder is replaced, the guide can be centered very easily in respect to both the center of the take-up tube and the taper bar pivot by using the adjacent thread guide assembly to gauge the adjustment. Of course, the adjacent assembly must be known to be properly adjusted before it is used as a gauge.

The adjustment is made as follows:—

(1) With the power to the deck shut off, turn the traverse cam by hand until the center of the adjacent bell crank follower is in line with the center of its taper bar screw as shown at A (Fig. 1). This condition should represent the center of the traverse stroke.

(2) Now adjust the thread guide holder (being replaced) so that it is similarly located with respect to its taper bar.

(3) Finally, adjust the guide as described in "Twists & Winds" No. 105 and tighten the guide holder onto the tubular traverse bar.

If a headless package assembly has to be removed, a mark on the hanger support bar indicating the position of the hanger bracket will be most helpful in relocating the headless package assembly in its former position.

January 1955 — 23.4.4A

WINDING AND TWISTING MACHINERY FOR NATURAL AND SYNTHETIC YARNS

UNIVERSAL WINDING COMPANY

PROVIDENCE BOSTON PHILADELPHIA UTICA CHARLOTTE ATLANTA LOS ANGELES MONTREAL and HAMILTON



of keeping the air warm are necessary. The relative humidity should not be

but have an adverse effect on the paper as far as strength is concerned;

# QUESTIONS and ANSWERS

## Tricot Fabrics Made With Different-Colored Sides

Technical Editor:

**Will the front-bar yarns on tricot machines always go to the back of jersey fabrics? (9844)**

Where the runners are set to produce a balanced stitch, the yarns threaded in the front-bar guides will appear on the back and the face of jersey fabrics. The back-bar yarn will be hidden by the front-bar yarn.

However, by manipulating tension on the beams and using heavier yarns in the back guides, the back-bar yarn can be made to appear on the face side of the fabric. Fabrics with different colors or materials on each side can be produced. This method, however, does cause the face-side stitches to become twisted and uneven.

## Rewetting Agents Improve Terry-Cloth Absorbency

Technical Editor:

**Can we improve the absorbency of terry cloth with chemical treatments? (9836)**

Rewetting agents are used in some mills to improve the absorbency of terry toweling. These agents are applied in the finishing operation and are removed when the towels are laundered.

Terry toweling is also scoured and boiled off prior to finishing to improve absorbency. The boil-off removes the water-resistant materials in the cotton, but this process is more expensive than putting a rewetting agent in the goods.

## Continuous Desize On Five-Drum Machine

Technical Editor:

**How is continuous desizing carried out? (9835)**

Desizing is carried out at 45 yds. per min. for rayon fabrics sized with starch and British gum. The machinery used is (1) a padder for enzyme, (2) a steamer, (3) a five-drum type continuous boil-off with a 6,000-gal. capacity, and (4) four scouring becks with 1,200-gal. capacity each.

The material is padded with 8 lbs. bacterial enzyme, 8 lbs. salt, and 1 lb. nonionic detergent to 100 gals. water. The detergent acts as a penetrant and later as a detergent during the wash cycle.

The temperature is maintained at 160° F in the dissolving tank. The pickup in padding is 100%. The fabric is then steamed for 1 min. at 212° F.

The first two becks have a synthetic-detergent charge, and they are fed continuously with detergent. The third unit is a hot rinse, and the last scouring beck is a cold rinse. There is a running overflow from the rinse back to the other becks and then into the five-drum boil-off, where the overflow is exhausted into the drain.

The detergent should be used without soda ash or other alkali to avoid damage to acetate or wool sometimes used in the fabrics.

## Keep Moisture Low To Store Cotton Yarn

Technical Editor:

**What are the best conditions in regard to heat, ventilation, and humidity when cotton yarn and thread are stored in a sub-basement? (9839)**

The most important factor to consider in storing cotton yarn and thread is the moisture content of the cotton. If the moisture content is kept to 10% or below, there should be no trouble from mildew.

Good ventilation and some means

## TEXTILE TICKLES . . . . . *By Edgar Allen, Jr.*

***"I seem to be gathering the impression this is the first loom you've ever sold!"***

PROVIDENCE BOSTON PHILADELPHIA UTICA CHARLOTTE ATLANTA LOS ANGELES MONTREAL and HAMILTON



of keeping the air warm are necessary. The relative humidity should not be kept higher than 65%. The temperature should be kept between 65 and 70° F.

Avoid storing yarn near hot steam pipes and radiators. Use slotted or perforated racks. Keep yarn off the floor. Where ceiling or pipe condensation is possible, cover the yarn containers with waterproof paper.

## Paper Twines Are Made By Twisting Narrow Strips

Technical Editor:

**How are paper twines made? (9837)**

The raw material used in paper-twine production is wood pulp, and the best pulp contains long fibers. Machines used to convert the pulp into paper make the paper with the fibers running lengthwise in the sheet. Paper thickness determines the size of the twine, and twine is made from 0.015 to 0.06 ins. dia.

The paper is made into 30-in.-dia. rolls with widths from 15 to 75 ins.

These rolls are scored by circular knives, divided by separating fingers, and rewound into pads or rolls ½-in. or more wide. The slitting machines have several sets of cutting knives.

Vertical twisting machines are used for twine with diameters less than 3/32 ins., and the horizontal machines are generally used for the heavier twines.

The paper is drawn from the pad over a roller that is immersed in water, water emulsions, or soap solutions. The paper absorbs about 25% moisture. Softening the paper makes a more-uniformly twisted yarn.

A method, known as the dip method, is also used where the pads are dipped in water and allowed to season. This method allows the paper to absorb about 12% moisture.

Twisting of the twine takes place as the paper is drawn through a porcelain eye and passed around a series of capstan rolls. The twine then passes through a small tube and is wound on twister bobbins over a traverse bar.

Special twisters are used for twine up to 1½-in. dia., and also for paper with a wire core.

Colored paper yarns with good colorfastness are made by adding color during the pulp-making process. Water-soluble colors can be added to the wet-twisting pan. This method colors the twine of the surface only and the color bleeds readily.

Softening and hardening solutions may also be impregnated during the wet-twisting operation. Mineral oils provide good lubrication properties but have an adverse effect on the paper as far as strength is concerned; so vegetable oils are generally used for softening. Waxes with little mineral oil are used as a waterproofing agent.

Because of the low breaking strength experienced in wet twisting, a new process uses tannin, size, and a silicate bath of 120° F. Without drying, the paper passes through a cold bath of basic aluminum formate. The dry tensile strength is increased 10% and the wet strength is increased 30% with this treatment.

## How To Weave Tubular Fabric

Technical Editor:

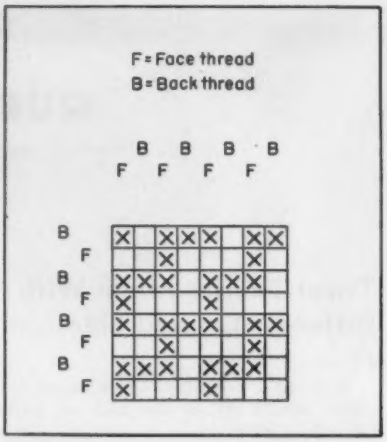
**How is a tubular weave made? (9843)**

A tubular fabric is really two fabrics woven simultaneously one above the other and joined together at the edges without a seam, so that the cloth opens up into a sheath or tube. Such cloth can be woven with one shuttle on either a cam or dobby loom.

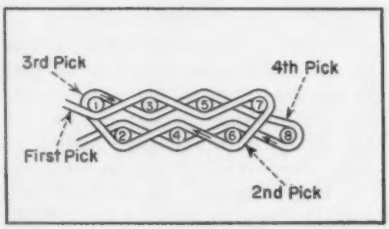
The cloth should be reeded two ends per dent in the outside dent, three ends in the dent next to each edge, and four per dent through the body of the warp. This will counteract the tendency the cloth has to contract more on the sides than in the middle and prevent a dense stripe on either side of the tube.

Although tubular fabrics are usually made with the plain weave, as in fire hoses and seamless bags, they can be woven with a 2 up 2 down weave in both face and back of fabric. The warp must contain an odd number of threads to prevent two adjacent threads from weaving alike at one edge of the cloth.

Tubular weaves can be used to make bags with seams, bags without seams, or a tubular sheath designed to fit a special cylindrical object.




**TUBULAR FABRIC is made with this design. Only one shuttle is used.**




**CROSS SECTION of the tubular fabric shows how the threads are interlaced.**

## Sash-Cord Sizes Are Based on Diameter

Technical Editor:

**What is the basis for the braided-sash-cord numbering system? Are there specifications for sash-cord strengths and yards per pound? (9834)**

The numbering system for braided sash cord is based on the diameter of the finished cord, and the size number indicates the diameter in 1/32-in. units. Standard sash-cord sizes range from Size 6 to 12, excluding a Size 11. There are, however, special sizes. Venetian-blind cords are usually Size 4½; and Sizes 3, 4, and 5 are used for indoor clothes lines, mason lines, and garden lines.

These are the specifications for sash cords:

| Size No. | Breaking strength | Feet per pound | Suggested use |
|---|---|---|---|
| 6 | 225 | 66 | Wgts. less than 15 lbs. |
| 7 | 272 | 55 | 15 to 20 lbs. |
| 8 | 328 | 44 | 20 to 25 lbs. |
| 9 | 392 | 36 | 25 to 35 lbs. |
| 10 | 480 | 27 | 35 to 45 lbs. |
| 12 | 560 | 20 | 45 to 60 lbs. |

# AIM* for the best in production line packaging with new Acme Steel Strapping Machines

Acme Idea Man J. H. Scott Birmingham, Ala. helped Pepperell with this packaging idea

ask your *Acme Idea Man to help solve your problems

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**AIM** *For Safe, Lower-Cost Shipping*

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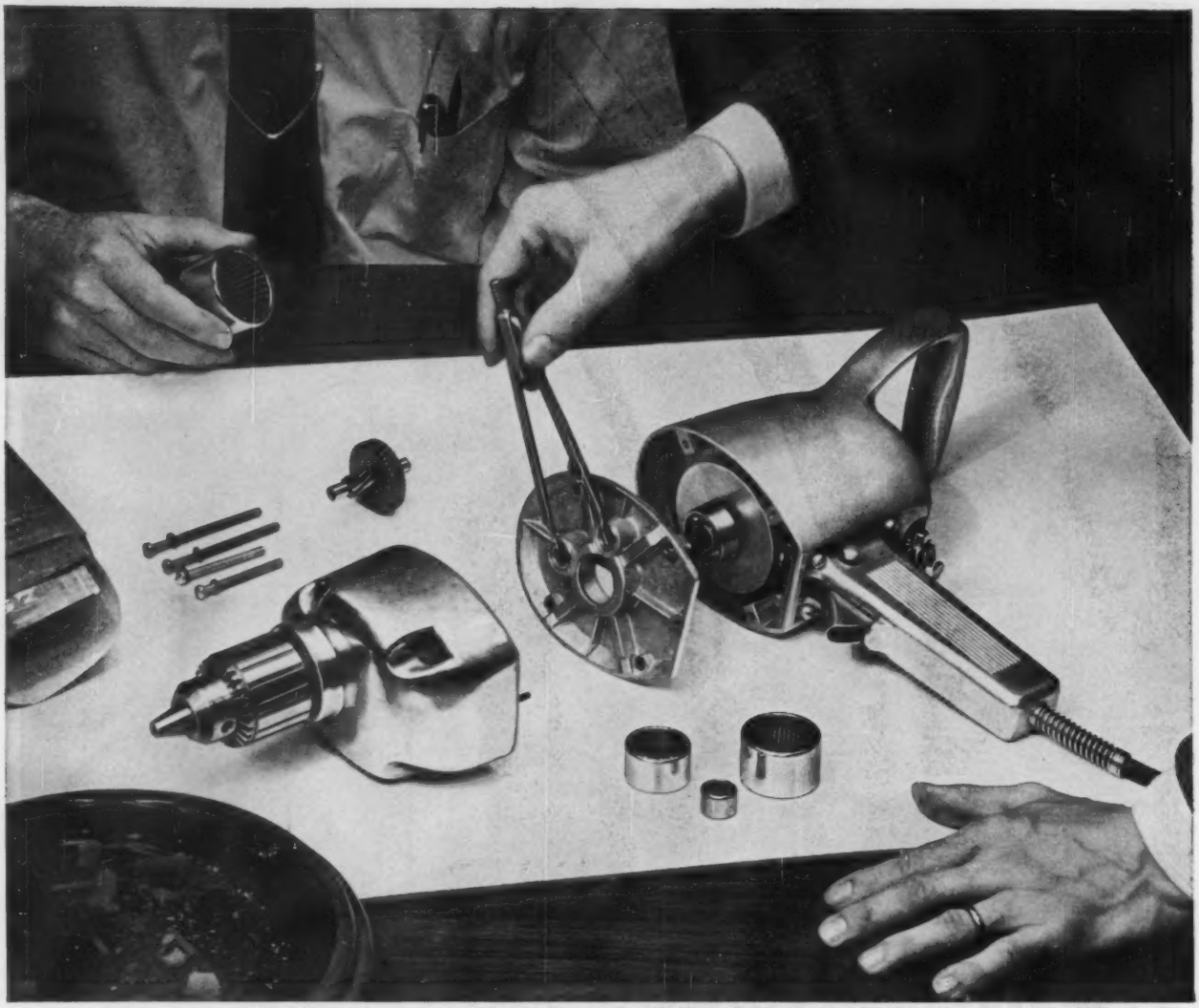

*Cummins Portable Electric Drill—product of John Oster Manufacturing Co., Milwaukee, Wis.*

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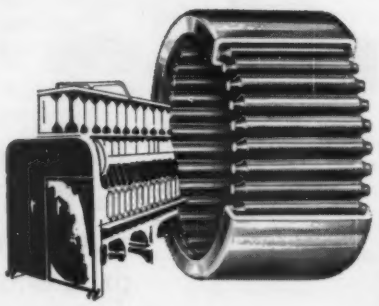

Leading manufacturers of textile machinery rely on Torrington Needle Bearings for long, high-capacity anti-friction service. In spinning equipment, looms and knitting machines their unique construction means longer bearing life, less attention, uninterrupted output.

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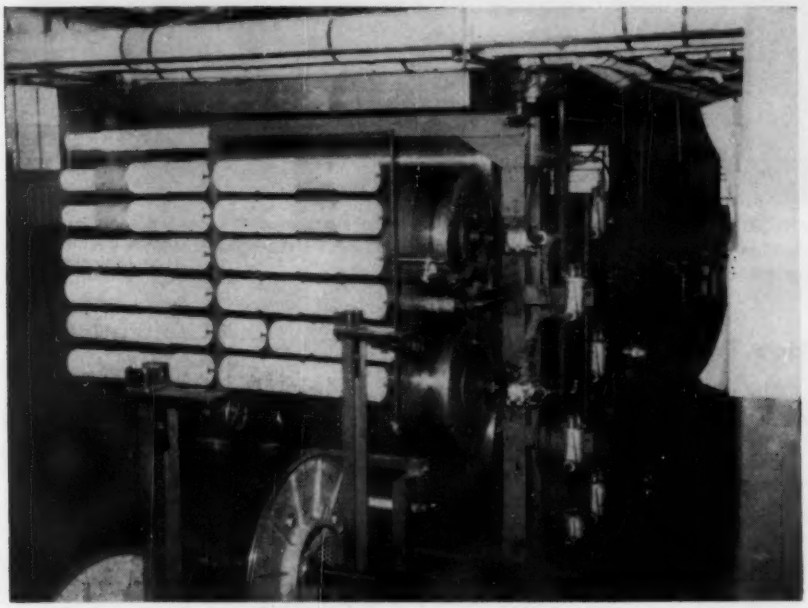
## KINKS AND SHORT-CUTS

# KINKS and SHORT-CUTS

## Creel for Selvage Ends Gives Better-Slashed Yarns



SELVAGE-END CREEL sits just behind the size box and holds a spool for each selvage end.

We make our selvages at our slashers by having each end of selvage yarn drawn from a package of yarn placed in a creel behind the size box. We have used this method for seven or eight years and find it to be the most satisfactory method for slashing selvage yarns both from the standpoint of good weaving conditions and satisfying our cutters.

Recently an unauthorized foreman decided to make selvages by the old method discarded years ago. He used the outside end next to each section-beam head to form the selvage yarn at the slasher. This change was not discovered until a number of warps were slashed and placed in our looms. Then weave-room production fell off, and weavers complained that they could not keep looms running because of bad selvages.

In making a thorough check of the old method, we found that the section-beam ends could not be properly controlled. The outside ends of a section beam are not always the same length as the other ends on the beam, and even the best warper tenders cannot always keep the one outside end winding perfectly level with other ends on the beam.

When this outside end is high or piles up against the beam head, it is winding excessive yardage on the beam; and when the end is low on the beam, it is winding less than the required yardage. The excessive yardage makes slack selvages, and too-little yardage causes tight selvages. Both conditions make for bad weaving.

While we were studying selvage conditions in slashing, we designed a permanent creel for selvage ends that's set behind the size box.

The bottom of the creel is made of 3-in. channel iron; the center upright portion of the frame is ¼x1½-in. flat steel stock; and the upright end braces are ¼x1-in. flat steel.

Nine cold-rolled steel rods of ½-in. diameter are welded to each side of the center upright frame and reach to the end upright braces. A short section of ½-in. pipe is welded to the end upright braces to hold the ½-in. rods used to form skewers. Small steel pins hold the rods to the pipes.

We place spools of yarn on the skewers to be used for selvage ends; there's one spool for each selvage end.

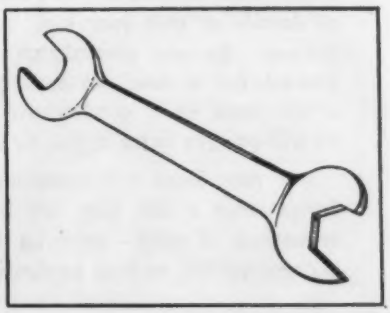
Now that we have this permanent creel, our warps run well in weaving again; and we aren't worried about trying to use makeshift methods. *A. O Pendleton, Roanoke Rapids, N. C.*

## A Ground-Off Wrench Gives Fast Action

On large overhauling jobs on looms, we're often slowed down because the threads of bolts and nuts are slightly burred and cannot be removed without running the nuts all the way off with a wrench. This condition is especially worrisome in close places where a socket-and-ratchet wrench can't be used.

To speed up the removal and replacement of these nuts and bolts, we have modified a common open-end wrench.

The long jaw of the wrench is ground to a round surface about ⅛ in. from the beginning of the side working surface. Then the wrench becomes somewhat like a spanner wrench and can be slipped on and off the nut easily to turn it. Final tightening, of course, is done with a complete open-end wrench. *Target*



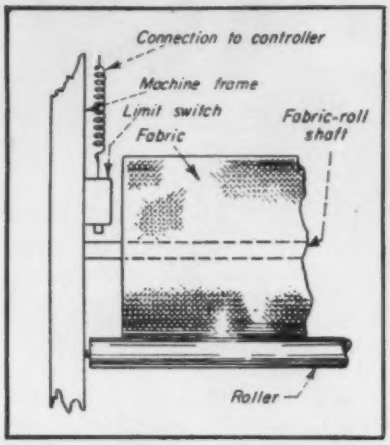
GROUND-OFF WRENCH slips on and off a nut quickly, and removal or replacement in close places is easy.





## How To Saw Plywood

## Control for Fabric Roll




**LIMIT SWITCH** is fixed to machine frame where the fabric-roll shaft will contact the switch as the roll rises.

There have been several methods for controlling fabric-roll diameters on textile machines described in TEXTILE WORLD recently. Here is a simple control that can be installed in a few minutes.

Drill holes in the fabric-roll bracket to receive a limit switch. The limit switch should be fixed in a position where the switch will be activated when the roll has reached its required size.

A suitable contact for the switch is the shaft that the fabric is wound on. Wire the limit switch to the stop-motion circuit so that the machine will automatically be stopped when the desired roll size is reached.

## Size-Room Checking Station

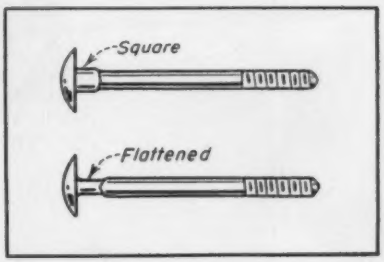
**CHECKING STATION** for size and oil is set up in the sizing area at Duffy Silk Mills, Buffalo, N. Y. In addition to this checking station, Duffy has a central testing laboratory that makes regular tests from several size rooms.

## How To Hold a Bolt in Wood

The squared section of a wood bolt will keep the bolt from turning when the wood is new. But when the hole enlarges, the bolt turns; and it is difficult to remove or tighten the bolt because the head is round.

To keep the bolt from turning, heat the head end of the bolt and hammer the square portion flat. The spreading out of the section will make the bolt secure. If the gaps are then filled with plastic wood, the chances for the bolt to turn are greatly diminished.

The treatment will not weaken the bolt. As a matter of fact, the flattened section will be torsionally stronger than it was before flattening. *W. F. Schaphorst, Newark, N. J.*




**A WOOD BOLT** with its squared section heated and flattened will not turn in a worn hole.

## $500 for Best Kink in 1955

## $25 for Best Kink Each Month

**In Addition to Space Payment on Acceptance**

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**We like ideas for improving machines, new devices that a mill man can build, attachments or methods of merit—anything that will cut costs, improve quality, or help production.**

**RULES OF CONTEST**

1. No limit to number of entries.
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3. All Kinks paid for on acceptance; extra payment for photographs. Drawings need not be finished (clear detailed pencil sketches will do).
4. Previously published material not eligible for prizes.
5. Unless you advise to contrary, we assume we may sign your name to Kink when published.
6. Prize winners will be selected by readers, a different group each time. At least 200 will be asked to select preferred Kinks in each issue. Their votes will select the best Kink, and their decision will be final. In cases of ties, duplicate prizes will be awarded.

Send Kinks to:
KINKS CONTEST, TEXTILE WORLD
201 E. Coffee St., Greenville, S. C.

## How To Saw Plywood

**PAPER CLIP** holds the sawed strip and plywood sheet together and prevents the strip from being broken away from the sheet.

Although a cross-cut hand saw cuts thin plywood effectively, there is a tendency for the teeth to break the strip of wood away from the sheet. The teeth catch the inner edge of the sawed strip and pull it upward or downward.

To eliminate this difficulty, hold the strip and the sheet together with a strong spring-type paper clip until the cut has been completed.

The clip can be applied after the cut is 6 ins. long. *Clifford T. Bower, London, England*

## Soldered Screws Stop Chattering of Doffer Combs

The constant vibration of the doffer combs on our cards used to cause the flat-headed machine screws that hold the blade in position to come loose. The loosening of the comb caused a noisy chattering; and if the screws were not retightened shortly, the countersunk holes in the blade wore out. When the holes wore, it was impossible to tighten the screws enough to hold the comb blade securely so that it properly combed the web from the doffer.

We solved the problem by boring the countersunk holes in the blade about 0.02 in. deeper and soldering the screw heads directly to the blade. With this method, even blades with badly worn-out holes can be held securely in position. A hot soldering iron is all that is necessary to remove the soldered machine screws. *Zeev Novak, Ramat Gan B., Israel.*

## Best-Kink Award for November

Each month TEXTILE WORLD awards $25 to the submitter of the Kink judged by a panel of over 200 practical mill men as the best for that particular month. A new batch of Kinks appears each month, and a new group of readers acts as judges each month.

If you are asked to judge one of these days, be sure to help select the best Kink by sending back your answer in time for final tabulation. Closing date for judging is the last day of the month in which the Kink appears.

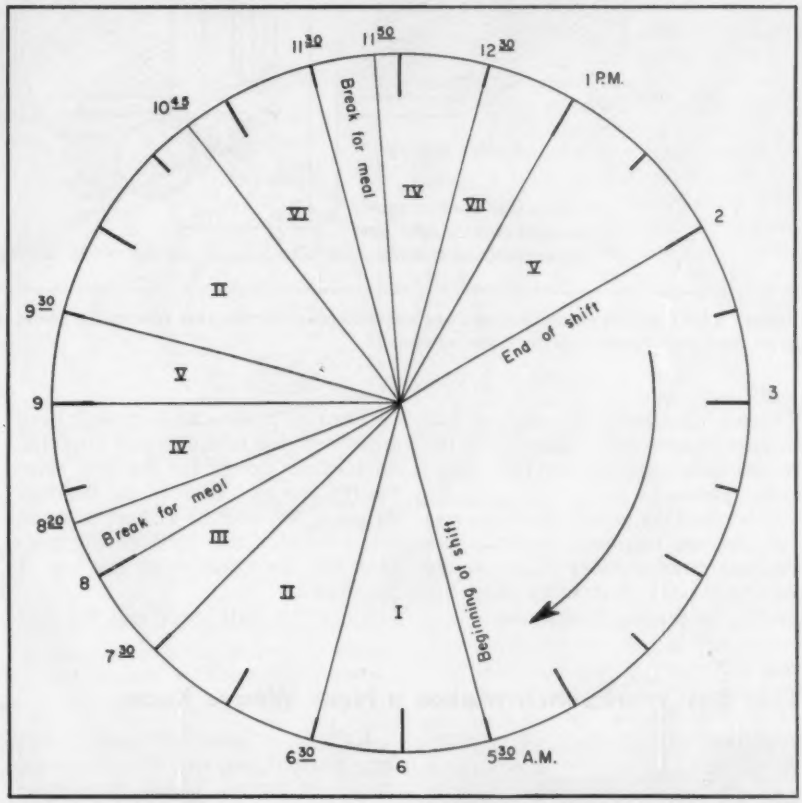
The best Kink for November, according to TEXTILE WORLD reader-judges, was:

**"Single Guide Reduced Singlings and Doublings"**

**By John D. McCosh, Columbus, Ga.**

Mr. McCosh is being sent a check for $25 with the compliments of TEXTILE WORLD.

## Job-Assignment Charts Lessen Need for Supervision




I Collecting bobbins from the looms
II Doffing cloth
III Supplying pirns for yarn for filling winders
IV Operating filling winders during the winder operator's break for meals
V Removing empty pirns from filling winders
VI Hauling cloth from the weave room to the finishing department
VII Sweeping the floor in the winding room

**JOB-ASSIGNMENT CHART** shows the hour hand the work he is to do all during the work day so that the jobs are done like clockwork.

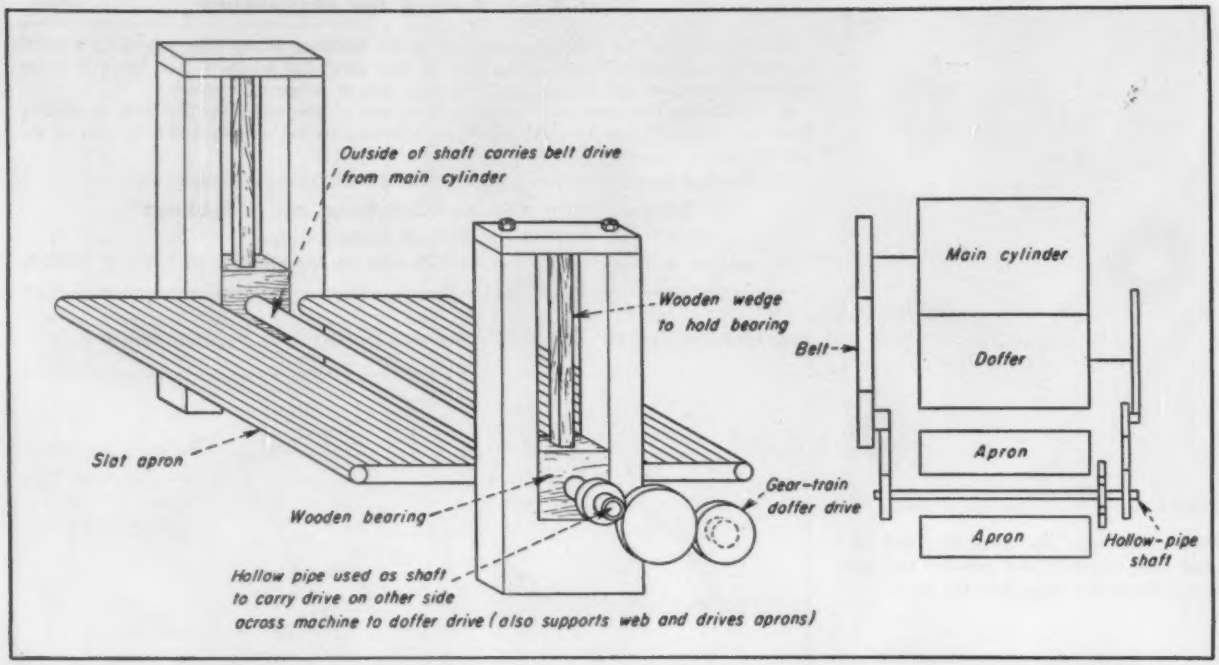
In our small weave room, several jobs must be given to one employee. This employee is directly under the supervision of the weaving foreman, but the foreman doesn't have sufficient time to constantly watch the work.

We have made a job-assignment chart that enables the hour hand to work practically without supervision.

The chart is laid out much like the dial of a clock and is divided into sections showing the exact time to be given to each of the several jobs to be done. For example, the first job at the beginning of a shift is to collect the empty bobbins from the bobbin cans at the looms. This job requires one hour. The next hour is given to doffing cloth.

Now the jobs that used to pile up are done in an orderly fashion and require little supervision. *C. E. Popper, Haifa, Israel*

## How We Ran Our Cards Without Peralta Rolls


Outside of shaft carries belt drive from main cylinder
Wooden wedge to hold bearing
Belt
Main cylinder
Doffer
Apron
Apron
Slat apron
Wooden bearing
Gear-train doffer drive
Hollow-pipe shaft
Hollow pipe used as shaft to carry drive on other side across machine to doffer drive (also supports web and drives aprons)

**DUMMY SHAFT runs in wooden bearings and transmits power for the gear drive to the aprons. Burry stock can't be run, but at least the cards can be used while Peralta rolls are being reground.**

Here's how we solved the problem of running our wool cards while the Peralta rolls were out for four weeks to be reground.

After the Peralta rolls, bearings, and journals were removed, we made two wooden bearings about 8 ins. square from 2-in. oak that fitted into the grooves on the machine frame.

Then we made a dummy shaft from a piece of pipe of the correct diameter, to transmit power for the gear drive for the aprons. To keep our bearings in place, we wedged a short piece of wood on each side between the bearings and the cross-bar at the top of the frame.

Since the shaft speed and the load exerted by the apron drive are both low, we had no trouble while the Peralta rolls were away.

Of course we couldn't run burry stock without our Peralta rolls; so we ran stocks without burrs during this period. But the temporary rig at least allowed us to operate the cards. *Evans R. Davis, Perth, Ont.*

## Tool Box-Workbench Makes a Neat Weave Room

**TOOL BOX is built right into the workbench. When the box lid is closed, it becomes a working surface.**

Each of our loomfixers used to own his own tool box, and the boxes were stored in various places throughout our weave room. The result was a cluttered weave room because the tops of the tool boxes were a catchall for objects that had no definite place in which to be stored.

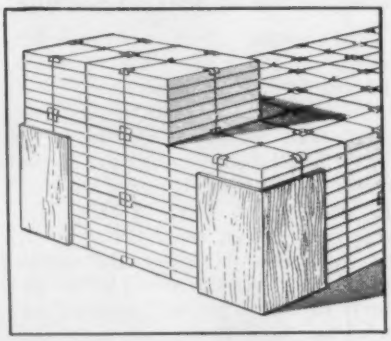
Our carpenter-shop employees have made workbenches with built-in tool boxes.

The tool boxes open at the top of the workbenches and have trays for small tools and adequate space for large tools and tool kits.

The bottoms of the workbenches contain two rows of drawers for supplies. When the tool-box lids are closed, there is plenty of space to assemble loom parts on top of the workbenches.

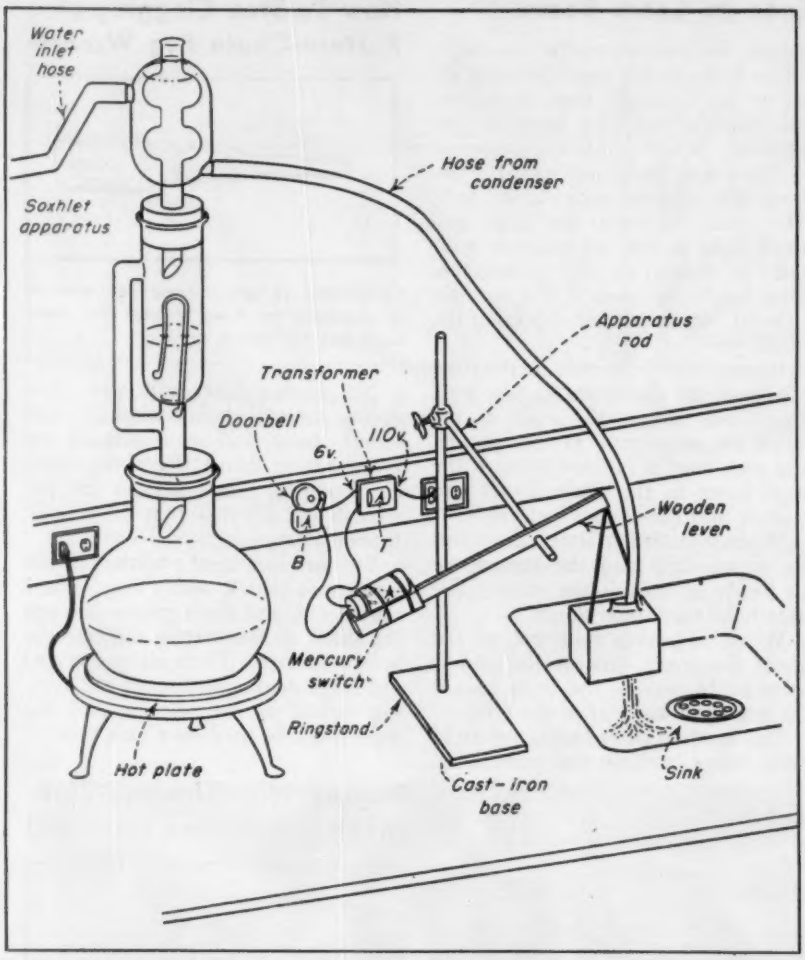
Now our weave room is always orderly and neat looking, and loomfixers can reach their tools easily. *Avondale Mills, Birmingham, Ala.*

## How To Protect Corners Of Stacked Goods



**WOODEN PROTECTORS made of plywood are ideal to prevent damage to corners of piled goods. The protectors need not be elaborate and can also be made of sheet metal. Height is determined by the type of traffic present in the area, such as lift trucks, hand trucks, or people. Using these protectors around the corners of stacked goods, you will find a drop in damaged material. *Hinde & Dauch Packaging Library***

## Alarm Saves Condensers When Water Shuts Off




**THIS ALARM SYSTEM warns the operator if the supply of condenser water fails during ether extractions. Its use may help avoid fires and damage to laboratory apparatus.**

If the water supply in the laboratory is irregular, considerable damage can occur to laboratory apparatus such as Soxhlet extractor-condenser systems, particularly when either is being used as the solvent. When condenser water is cut off for only a few minutes, ether fumes will ignite and the apparatus and the experiment may both be lost.

A warning signal to attract the operator's attention when the water shuts off can be made from parts available in any laboratory or maintenance department. A doorbell and a bell-ringing transformer are the main items.

To make the alarm:

Convert a litmus-paper tube into a mercury switch by bringing two wires through the cork and leaving the ends exposed. Add enough mercury to cover these wire ends when the tube is tipped cork down, but leave them uncovered when the tube is level. Seal the cork in the tube with sealing wax.

Mount the tube on one end of a light wooden lever about 12 ins. long and 2½ ins. wide, and bore a hole in the lever about 3 ins. from the opposite end. This hole should be large enough to permit the lever to rotate easily on a standard apparatus rod.

Clamp the apparatus rod on a ringstand convenient to a sink or drain. Punch a hole in the bottom of an 8-oz. tin can, such as is used for polish or lighter fluid, and attach the can to the wooden lever by any convenient means, such as the wire shown in the sketch. Place the lever on the apparatus rod, and insert the water hose from the condenser into the top opening of the can.

Attach one of the wires from the mercury switch to one side of the bell circuit and the other wire to a 6-v. terminal on the transformer. Connect the remaining bell terminal with the other 6-v. transformer terminal.

Adjust the water flow so that the can overflows. The weight of the can of water pulls the short end of the lever down and raises the long end to hold the mercury clear of the wires.

If the water supply stops, the can will empty through the bottom hole and the loss of weight will cause the lever to rotate on the apparatus rod and raise the can to the position illustrated in the sketch. As the long end of the lever lowers, the mercury covers the two wires and closes the electrical circuit to ring the warning bell.

## Filling-End Holder Reduces Jerk-ins

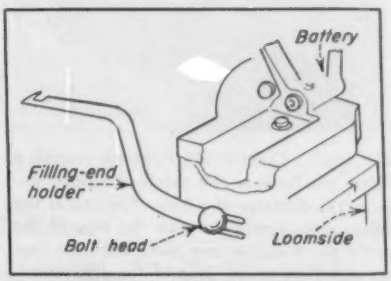
Most of our jerked-in filling occurs during the transfer of the filling bobbin. Several things caused the jerk-ins, and we can eliminate most of the defects by proper loom settings.

However, the shuttle often bounces enough to cause some slack in the yarn but not enough to interfere with the thread cutter. In these cases, the thread cutter misses the yarn.

We have made a filling-end holder to hold the filling yarn in the correct position when the shuttle bounces.

The holder is cut from a piece of sheet steel. One end has a hook cut in it, and the other end is slotted. The slotted end is slipped under the head of the breastbeam and loomside bolt near the hopper stand.

When this holder is made correctly and the hook positioned properly, the hook catches the filling every time a transfer is made and holds the filling out of the shuttle box. *W. C. Westbrook, Trion, Ga.*




**FILLING-END HOLDER bolts to the loom and holds the transferred filling end out of the shuttle box.**



## Use These Easy Methods To Align and Level Shafting

## Easy Way To Fasten Warp Ends to Loom Beams

WARP ENDS are tied in knots at the slasher and stuck into the large holes of the loom beam. The slots hold the ends tight.

We use steel barrels on our loom beams, and we have always had a problem in attaching the yarn to the beams during slashing.

Now we have a method for fastening the ends of the yarn to the beam barrels at little cost. The method is used over and over again without any further upkeep or repairs.

The beam barrel is placed in a jig on a large drill press, and a 1¼-in. hole is bored in the barrel 1 in. inside the threaded section to adjust the beam flanges for various widths of warps. Other holes of the same diameter are bored in a straight line throughout the length of the beam barrel at 8-in. intervals.

Then ½-in. holes are bored 1 in. from the edge of each 1¼-in. hole. The space between the large and small holes is cut out to form a V-slot, as shown in the photograph. Care has to be taken if the slots are chiseled out to prevent distorting the barrel.

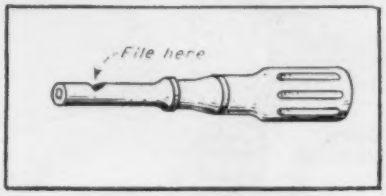
Beams fixed with this method are placed in the slasher the regular way. Knots are tied in the ends of the hands of warp yarn at the slasher, and each knot is inserted through the large holes in the beam barrel and pushed into the slotted section.

When the slasher starts, the knots are drawn tight and the tension on all hands of yarn is the same. The slots hold the hands firmly.

When the warp runs out at the loom, the waste yarn at the end is removed by pulling the ends toward the large hole and out of the hole.

This method of fastening warps to loom beams is cheap and permanent.

## How To Stop Clogging of Pattern-Chain Peg Wrench




CLOGGING of pattern-chain peg wrenches is prevented by filing through the shank right into the hollow surface.

No matter how well you clean dobby pattern chains removed from looms, there's still some dirty oil and grease left on them. When the chains are repegged, grease gets in the peg wrench and fills it so that it has to be thrown away.

But just 3 mins. of work will fix the wrench so that it won't clog. Use a rat-tail file, and file a groove through the shank of the wrench and into the hollow surface. Then all grease and dirt are pushed right through the working surface of the wrench, and the wrench can be used for a long time.

## Use Emery Cloth To Polish Holes

AN EMERY-CLOTH STRIP wound around a cotter pin forms a roll that can quickly enlarge the diameter of a bore. The end of the emery strip nipped between the legs of the cotter pin is locked into place when the legs are tightened in the jaws of the drill chuck.

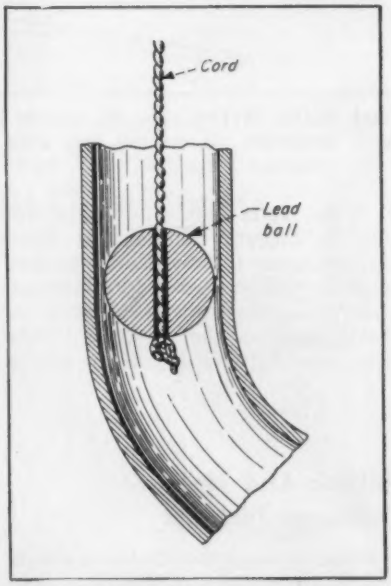
In the absence of a reamer or other suitable sizing tool, a roll of emery cloth powered by an electric drill can be used effectively to increase the bore size of a machine part.

A strip of emery cloth is wound around a cotter pin with one end of the strip nipped between the legs of the pin, and the cotter-pin legs are gripped in the jaws of the drill chuck to hold the roll of emery cloth in place. The emery cloth should be wrapped around the pin until the pin fits with little clearance into the hole to be reamed. The strip should be wound in the direction opposite to that at which the drill rotates.

A fairly light application of the emery-cloth roll will be sufficient to increase the bore 0.002 in. very quickly. The drill should be moved around the bore to permit the emery cloth to contact the entire surface.

The worn surface of the emery cloth can be renewed by tearing the outer layer from the strip. Since such a polishing tool can be made quickly and inexpensively, it is a good plan to make several rolls with different outside diameters, ready for use when necessary. *Clifford T. Bower, London, England*

## Pulling Wire Through Pipe Made Easy With a Lead Ball

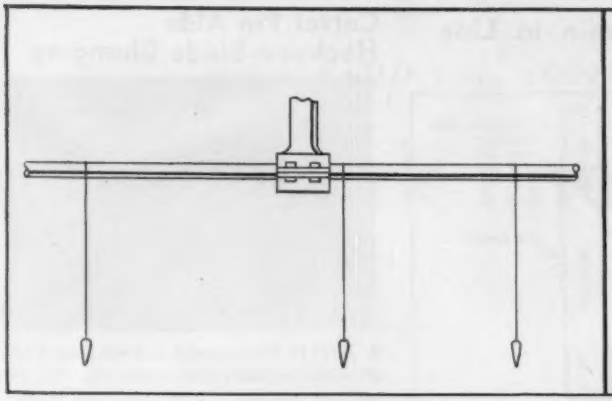



A LEAD BALL attached to a thread or cord can make the job of pulling a wire or rope through a pipe much easier. Drill a hole in the ball, insert the thread, and knot the thread. Make the knot small enough so that it will not lodge the ball against the pipe wall. The other end of the thread, of course, is attached to the wire, which can then be pulled through the pipe easily. *W. F. Schaphorst, Newark, N. J.*

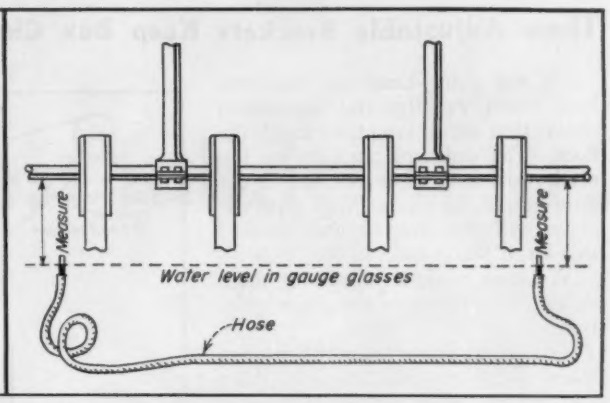


KINKS AND SHORT-CUTS

## Use These Easy Methods To Align and Level Shafting



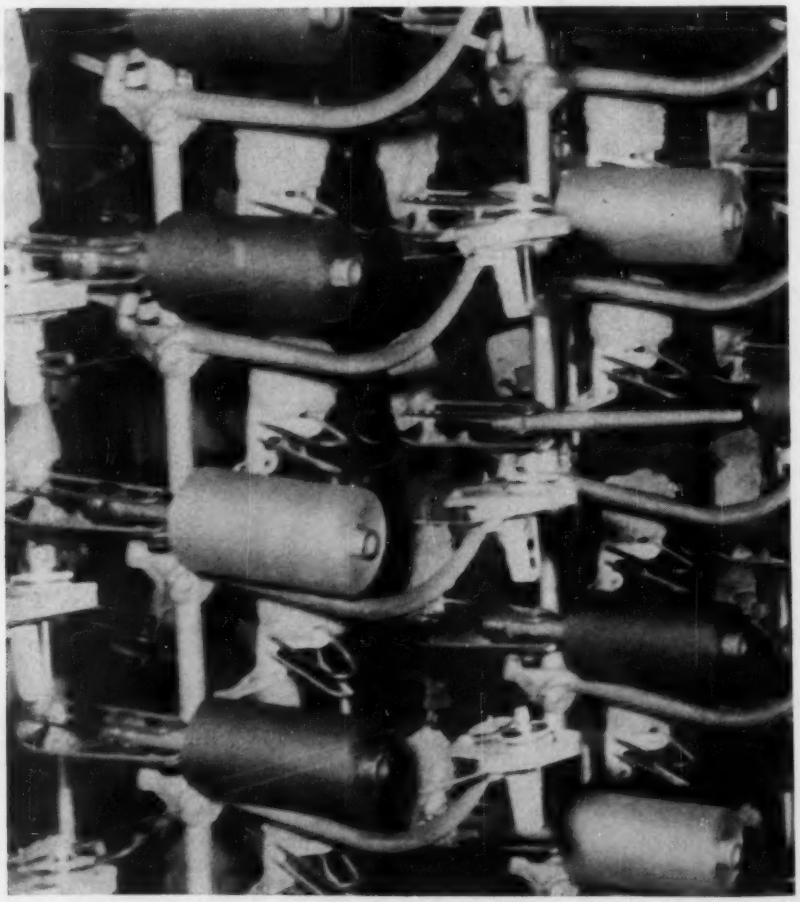
THREE PLUMB BOBS along a shaft can be used to determine the shafting alignment. Sight from the end of the shaft along the plumb-bob threads to check the alignment.




AN ORDINARY HOSE filled with water and with gauge glasses inserted in the ends is a handy tool to check the levelness of shafting. The temperature of all the water in the hose should be the same.

To check the alignment of shafting, suspend three plumb bobs along one side of the shaft. By sighting down the plumb-bob threads from the end of the shaft, you can easily see if the shaft is in line.

To check the level of the shafting, fill an ordinary hose with water, insert gauge glasses in the ends, and place the gauge glasses against the ends of the shafting. The water level in the gauge glasses indicates the levelness of the shaft. The method is accurate; but for the greatest accuracy be sure that no air is in the hose and that all the water in the hose is at the same temperature. *W. F. Schaphorst, Newark, N. J.*



## Warper Creel Handles 5/8-in. Yarn Carriers

Our filament warper creel is made for 3° taper cones, and we were often called to warp specialty yarns that were not supplied on 3° cones.

We worked out this idea for warping directly from packages wound on $\frac{5}{8}$-in. yarn carriers:

An empty bobbin is fitted between the springs of the filament-cone holder. The packages to be warped are placed on the bobbin so that the yarn coming over the end of the package is positioned opposite the guide eye on the warper creel.

Occasionally, some yarns on these packages must be warped at lower speeds than normally used for low-twist filament yarns. Single and two-ply low-twist filament yarns can be run very satisfactorily.

We save the rewinding cost from a precision-wound or dye-tube package to a 3° filament cone. The warper can now be used with greater flexibility than was possible before. *D. E. Baylis, Milltown, N. B.*

FILAMENT BOBBINS held between the springs of the cone holders receive yarn packages on 5/8-in. dye tubes to eliminate winding costs and increase creel flexibility.



*This extra-smooth high friction*

## These Adjustable Brackets Keep Box Chain in Line

On our dobby-head and Knowles-head looms, we often run box-motion chains that are so long they touch the floor. The ordinary brackets we formerly used to hold the chains off the floor caused the chains to go onto the chain cylinder crooked and resulted in a lot of filling balks in the cloth.

We have made a permanent stand to hold long chains in the proper position.

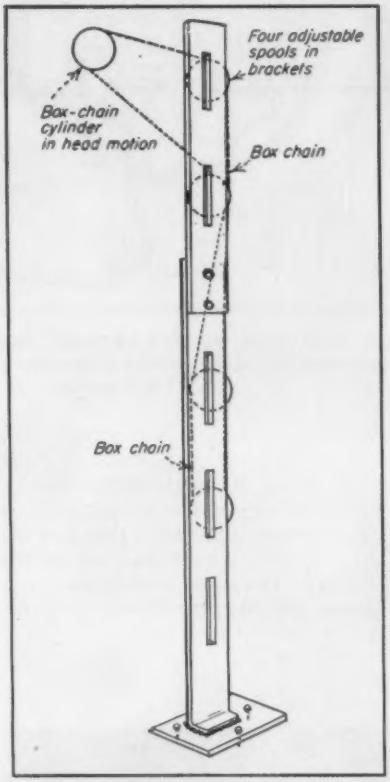
The stand frame is made from a 42-in. length of strap iron ¼ in. thick and 2½ ins. wide. Three 6-in. slots ½ in. wide are cut in the iron to hold adjustable wooden spools for the box chain to run over.

One end of the iron is bent at right angles 2 ins. from the end. This bend is welded to a 9-in. square plate ¼ in. thick. Three holes are bored in the plate, and it is fastened to the floor with lag screws at the loom to form a base.

Another 36-in. piece of strap iron from the same stock is used to make an extension for the frame. The extension is fastened to the frame with ⅜x¾-in. loom bolts. Spools are also bolted to the extension.

The extension is raised and lowered as needed to fit all lengths of box chains.

Chains now go onto the chain cylinder straight, do not pick up dirt from the floor and do not hang. *E. B. Hofford, Jersey Shore, Pa.*




**THE EXTENSION fastens right into the frame of the stand to fit any length of box chain, and four adjustable spools keep the box chain going onto the chain cylinder straight.**

## Cotter Pin Aids Hacksaw-Blade Changing

**A COTTER PIN inserted in a hacksaw frame prevents the frame from collapsing when the blade is removed.**

The blade of the average adjustable-frame hacksaw helps hold the frame together as a rigid assembly. When the blade is removed, the frame usually collapses into a collection of pieces that are difficult to handle; and it is hard to change the blade.

A simple modification can prevent collapse of the frame during blade changing or replacement. With the frame set for one blade size, drill a small hole through the backbone and insert a cotter pin through the hole. The cotter pin holds the two parts of the frame rigidly together to prevent a collapse.

It is advisable to drill the frame to suit various blade lengths. The cotter pin should be sprung open slightly so it can be inserted or removed from the hole but cannot fall out. *C. T. Bower, London, England*

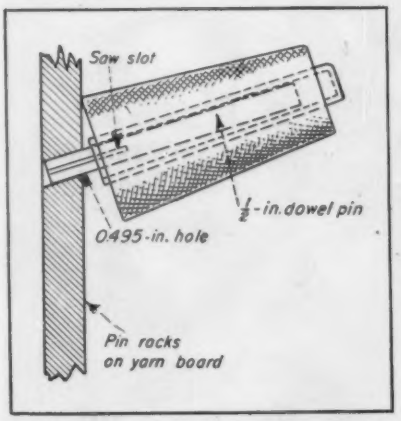
## Yarn Storage Boards Are Easy To Make

Rough handling and storage of yarn on cones in textile mills account for much damaged yarn and poor work. Much of this damage can be avoided by careful handling and storing cones of yarn on pin racks made for that purpose.

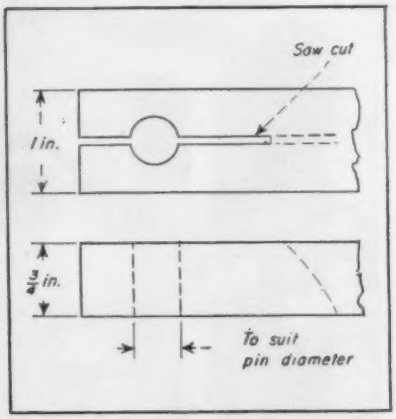
Here's a cheap and easy way to make pegs for such a yarn board or rack.

Cut 6-in.-long dowel pins from ½-in. round oak or rock maple, and saw a 2-in. slot down the center of each pin. The slots can be made rapidly on a circular saw with a pin-slotting holder. The holder is made from 1x¾-in. stock with a hole drilled through the center to suit the diameter of the pins. A saw slot down the center of the stock allows the saw blade to pass through.

The holes in the yarn board or rack post should be drilled so that the dowel pins extend from the board at an angle to keep the cones from falling off the pins. The holes should be 0.005 in. smaller than the dowel-pin diameter to hold the pins tight. The pins can then be pushed in the board. *Walter A. Simond, Essex Junction, Vt.*




**HOLE in yarn board or pin rack is 0.005 in. less than dowel-pin diameter to assure a tight fit when the pin is inserted. Holes are drilled at an angle.**




**PIN-SLOTTING HOLDER can be made from 1 x ¾-in. stock to speed up dowel-pin slotting in making yarn boards and pin racks to store cones of yarn.**

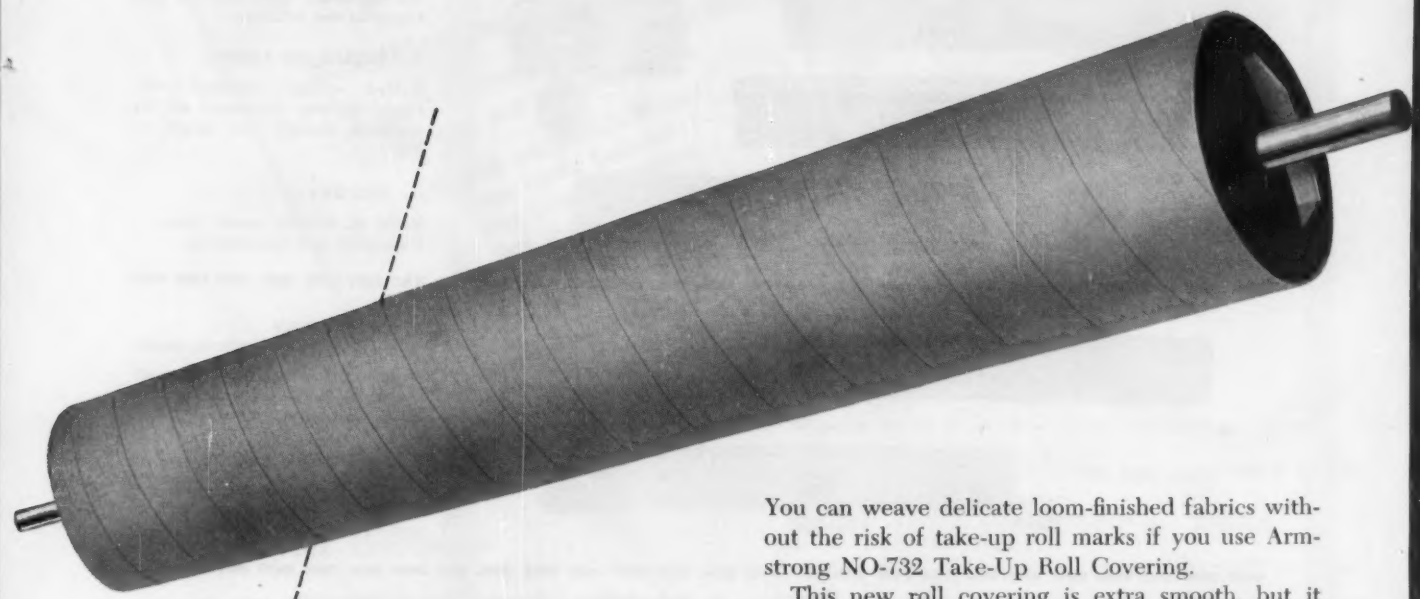


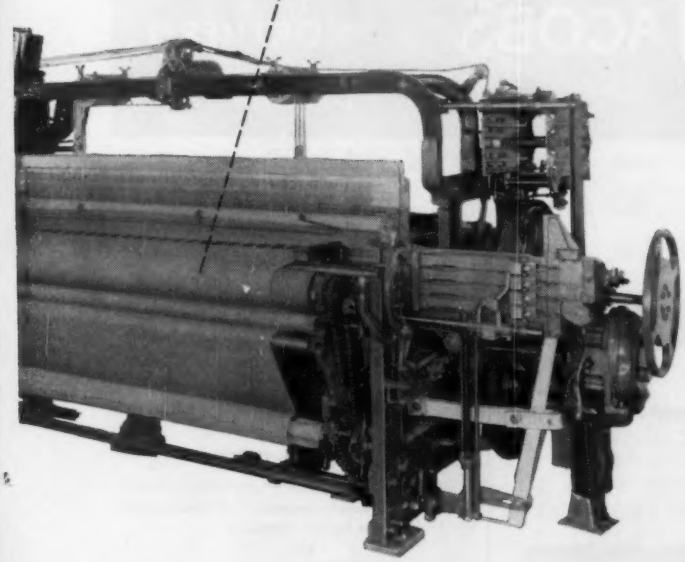
**A. VAN-DAR HEAD**

*This extra-smooth high friction*

*take-up roll covering*

# won't mark finest fabrics





You can weave delicate loom-finished fabrics without the risk of take-up roll marks if you use Armstrong NO-732 Take-Up Roll Covering.

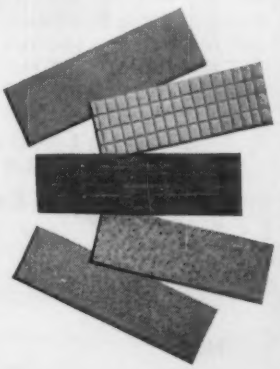
This new roll covering is extra smooth, but it delivers all the take-up tension you need with no danger of marking. Its special synthetic rubber compound has up to twice the holding power of ordinary rubber. In addition to protecting high-count fabrics, the NO-732 compound also wears exceptionally well. And a sturdy cloth backing gives the cover extra strength.

A test in your weave room will prove how well this roll covering handles all kinds of fabrics. Ask your Armstrong man for samples of NO-732 or write direct to Armstrong.

**Send for free booklet.** Armstrong "Textile Roll Coverings and Mill Supplies" gives suggestions on selection, installation, maintenance of Armstrong textile products. Write to Armstrong Cork Company, Industrial Division, 6701 Dauphin Street, Lancaster, Penna.

**ARMSTRONG OFFERS A FULL LINE OF TAKE-UP ROLL COVERINGS**

Armstrong can supply a wide choice of take-up roll coverings of synthetic rubber, cork and synthetic, plain or gridded cork composition.



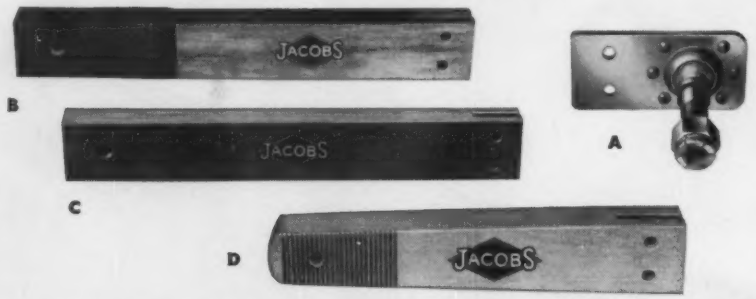
Armstrong

## TAKE-UP ROLL COVERINGS

*. . . used wherever performance counts*

# Sweepsticks and Connectors

## by JACOBS *For Maximum Loom Efficiency*




**A. VAN-DAR HEAD**

A replaceable rod end bearing for all types of JACOBS sweepsticks. Allows close fit on pick arm stud and avoids hole elongation to give a pick that is absolutely even. Heads and bodies are individually replaceable.

**B. RUBBERWELD**

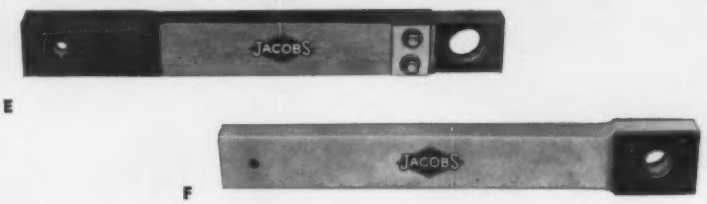
Patented construction of chemically bonded plyweld and neoprene gives the smoothest, most resilient pick known to the industry.

**C. RUBBERIZED FABRIC**

Molded rubber combined with fabric. Uniform consistency assures maximum strength and length of life.

**D. HICKORY**

Made of highest grade stock. Economical and long-wearing.




**E. RUBBERWELD (with plastic head)**

Has removable head of high-impact plastic. Body is long-wearing, resilient, and replaceable.

**F. REINFORCED CANVAS**

High quality Army Duck reinforced by plastic blocks on each side of stud hole for long wear.

The Bullard Clark Company

**SOUTHERN DIVISION** Charlotte, N. C.

**JACOBS**

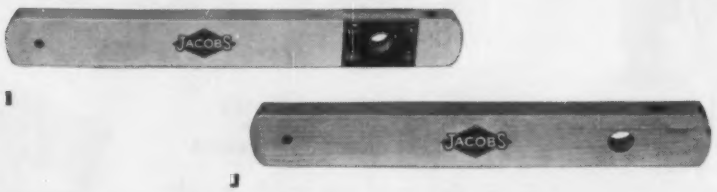
**NORTHERN DIVISION** Danielson, Conn.

**G. RUBBERIZED FABRIC**

Molded cloth and rubber. Reinforced at stud hole by plastic plates and built up at lug hole for improved performance.

**H. LAMINATED**

Constructed of highest quality Plyweld or Pakweld, in regular design or streamline style for lighter weight.




**I. REINFORCED HICKORY**

Made of highest grade hickory with fiber reinforcements at the stud hole for longer wear.

**J. HICKORY**

Highest grade hickory but without reinforcements. The most inexpensive sweepstick of the JACOBS line.

JACOBS *Can solve ANY Sweepstick or Connector Problem!*

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*and the Advertisements*

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## TEXTILE MACHINERY

**Heavy-duty mixing picker**—For any fiber, any blend. 48-in. machine capacity is 2,000 lbs. per hr. Fully adjustable nip. Bulletin 198. C. G. Sargent's Sons Corp. (F-1)

**Shirley opener**—Production about 400 lbs. per hr. Cover above beater eliminates high air pressure to strip beater without stripping edge. John Hetherington & Sons, Inc. (F-2)

**Ring spinning frame**—1½-in. steel columns allow 8- to 11-in. traverse. Draft range 20 to 50. Twist range 10 to 80. W. D. Dodenhoff Co., Inc. (F-3)

**Fully automatic quiller**—With revolving conical yarn guide. Bunch set from 0 to 17 yds. Maximum quill length 9⅛ ins. Full quill diameter 1⅞ in. W. Schlafhorst & Co. (F-4)

**Top-roller grinding machine**—With dust extractor. Hydraulic installation. Mean roughness on finished surfaces is 0.4 to 0.6 microns. Joh. Jacob Rieter & Co. Ltd. (F-5)

**Seam detector**—For shearing and other cloth machines. Seams and slugs pass under floating rings to stop machine. B. F. Perkins & Son, Inc. (F-6)

**Continuous boil-off machine**—Eliminates break marks, stick marks. Goods shrink up to 50% more. Also used for plied yarns. Hinnekens Machine Co., Inc. (F-7)

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## AUXILIARY EQUIPMENT

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ASKANIA

## READER SERVICE *(Continued)*

show that exposures are not so hazard-

## READER SERVICE *(Continued)*

**Electric-motor controls**—Manual starting switches, across-the-line reversing starters, combination starters, limit switches, timing relays. Sixth edition. Allen-Bradley Co. **(F-18)**

**Hand tachometers**—To measure the speeds of rotating parts, moving surfaces. Three separate ranges. Only one range appears at a time. Bulletin 103. Metron Instrument Co. **(F-19)**

**Multimotor slasher drive**—Electronic control for accurate uniform tension, smooth acceleration with any diameter beam. Hot-air or can-type drying. Bulletin D2325. Reliance Electric & Engineering Co. **(F-20)**

**Radiant burners**—For drying textiles. Used on tenter frames, slashers, singers, and dry cans. Where resins are to be cured at 350° F. or higher. Red-Ray Mfg. Co., Inc. **(F-21)**

### CHEMICALS & SUPPLIES

**Fugitive tints**—In 75 colors for silk, viscose, acetate, cotton. Removed with ½% soap. 2 oz. tint for 100 lbs. fiber. United States Testing Co. **(F-22)**

**Screws** — Allen-point setscrews, capscrews, shoulder screws, pipe plugs, dowel pins, hexagon keys and drivers. Allen Mfg. Co. **(F-23)**

**Tricot beams**—Welded construction, forged heat treated. Aluminum alloy heads. Light weight. Bulletin 49-A. Milton Machine Works. **(F-24)**

**Textile supplies**—Roll coverings, spindle washers, aprons, french-worsted covers, take-up-roll covers, loom-brake bands. Armstrong Cork Co. **(F-25)**

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**Glycols and related products**—Ethylene glycol, diethylene glycol, ethylene dichloride, and dichloroethyl ether. Physical properties. Wyandotte Chemical Corp. **(F-31)**

**Indulin**—A pine-wood liquor for removal and recovery of proteins and enzymes. Bulletin 105. West Virginia Pulp & Paper Co. **(F-32)**

**Toxicology of acrylonitrile**—Studies


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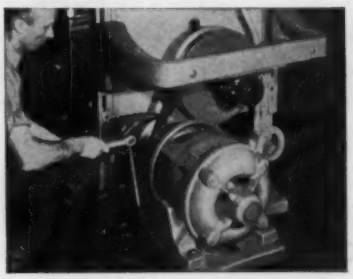

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# ASKANIA
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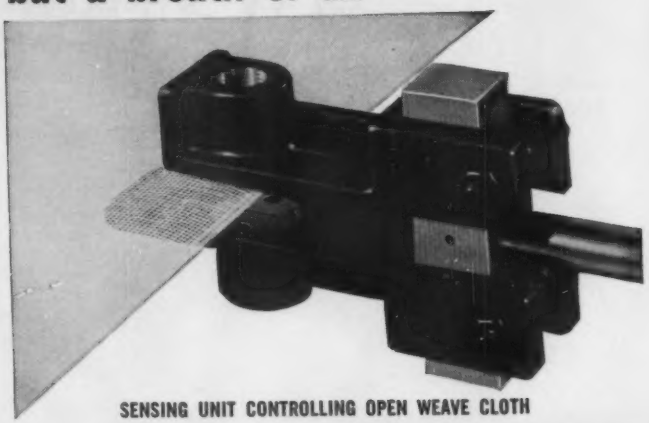
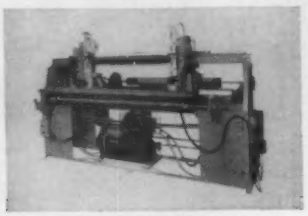


SENSING UNIT CONTROLLING OPEN WEAVE CLOTH



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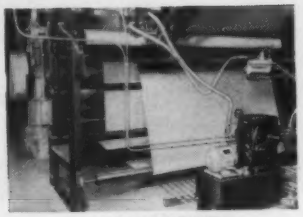

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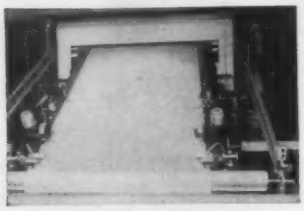
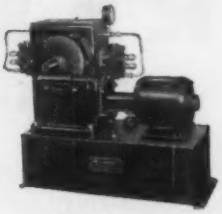


CLIP TYPE TENTER



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The Askania Cloth Guide Control has been tested on hundreds of applications—it's extremely fast, accurate and dependable. It guides fast moving webs with a breath of air. It's an ideal unit to solve your cloth guiding problems on Tenter Frames, Tubing Machines, Folding Machines, Examining Machines, Printing Machines, Slitting Machines, Labeling Machines or Rewinding Machines. Askania Cloth Guide Controls are establishing new standards in the finishing departments of hundreds of Textile Mills. If you have a cloth guiding problem—ask for Bulletin A-161, or call Askania engineers for full details.

**ASKANIA REGULATOR COMPANY**
272 E. Ontario Street, Chicago, Illinois
*Subsidiary of General Precision Equipment Corp.*


## READER SERVICE *(Continued)*

show that exposures are not so hazardous as believed, although acrylonitrile is toxic by ingestion. American Cyanamid Co. **(F-33)**

### MAINTENANCE AND ENGINEERING

**Iron body gate valves**—With guided tight-seating disk. Bronze stem does not touch iron parts of valve. Circular 564. Lunkenheimer, Cincinnati, Ohio. **(F-34)**

**Hoists**—Built-in capacities of 250, 500, 1,000, and 2,000 lbs. Combined electrical brakes and motor control. Safety-type load block. Bulletin 182. Shepard Niles Crane & Hoist Corp. **(F-35)**

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**Stainless-steel valves**—Gates ¼ to 8 ins., globes and angles ¼ to 6 ins., checks and Y ¼ to 3 ins. Form 200. Jenkins Bros. **(F-37)**

**Lighting**—Group replacement gives better lighting at lower costs. Lamps last about 7,500 hrs. Replace all lamps at about 5,000 hrs. Sylvania Electric Products, Inc. **(F-38)**

**Roller chains and sprockets**—Minimum-bore sprockets for reboring. Finished bore, and taper-lock bushed sprockets. Catalog 754. Diamond Chain Co., Inc. **(F-39)**

**Silent chain drives**—For high speeds, heavy loads, and large reduction. For ½ to 50 hp. Book 2425. Link-Belt Co. **(F-40)**

**Unit heaters**—For high-pressure steam systems not to exceed 125 psi.-ga. Low outlet temperature. Bulletin 700-45. Herman Nelson Products. **(F-41)**

**Motor pulleys**—In eight sizes from ½ to 15 hp. Speed ratios as great as 4 to 1. Catalog V-545. Reeves Pulley Co. **(F-42)**

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**Louver diffuser**—Plastic grid with ⅜-in. cubical openings. Gives high footcandles, noise reduction, low brightness. Edwin F. Guth Co. **(F-44)**

**Steam cleaner**—Converts cold water to 80 psi. steam in 45 secs. Saves 20 to 30% in chemical costs, 15 to 25% on fuel. Cleans knitting machines in 45 mins. Turbo Machine Co. **(F-45)**

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**Creative package design**—Your shipping box can lower your distribution costs, save packing time, speed handling. Hinde & Dauch. **(F-46)**

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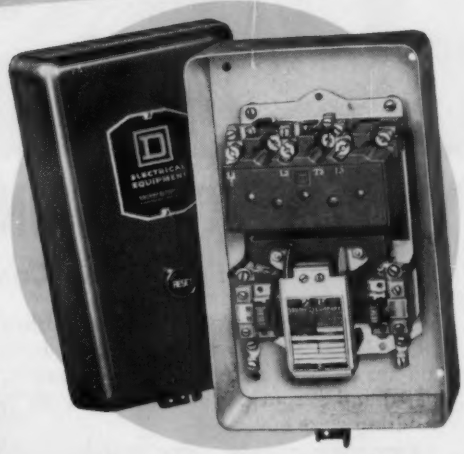

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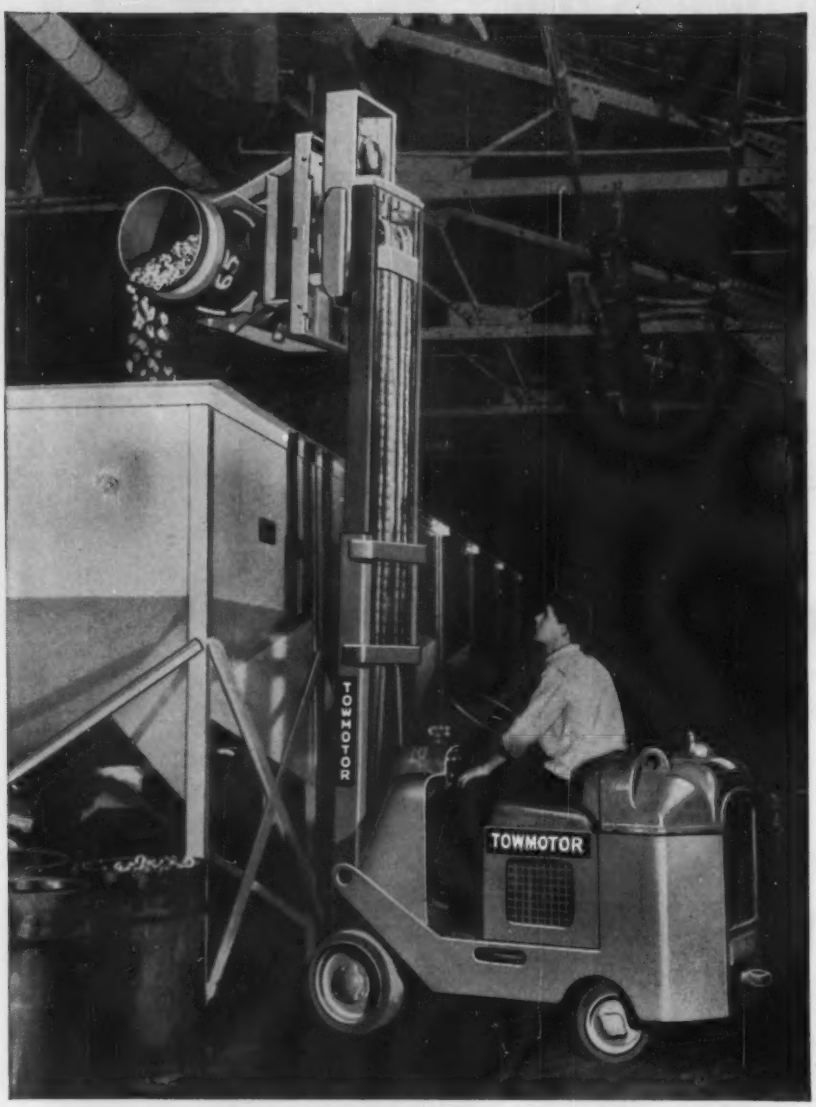


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## . . . Overall Handling Costs Cut 60%

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fountains, pedestal drinking fountains. No. 29H.1. Halsey W. Taylor Co. (F-47)

**Safety for supervisors**—Ten commandments on miniature wall chart. American Management Assn. (F-48)

**Wrapping and bundling**—Overwraps, unit wraps, single wraps. Machines and materials for wrapping. Bulletin 25. Paisley Products, Inc. (F-49)

**Power conveyor**—For lightweight materials handling. Capacity is 17 lbs. per lineal foot or 8½ lbs. on 6-in. centers. Catalog A-96. Richards-Wilcox Mfg. Co. (F-50)

## Three Ways To Prevent Trap and Valve Trouble

Incorrect selection and installation of steam traps and pressure-regulating valves can result in needless maintenance and costly expenditures. But there are three ways to prevent this trouble:

1. Install traps ahead of pressure-regulating valves.
2. Install pressure-regulating valves on the basis of capacity rather than pipe size.
3. Select traps to operate at boiler pressure in case of pressure-reducing valve failures.

By installing a trap ahead of a pressure-reducing valve, condensate formed by radiation losses in supply lines is reduced before it can reach the valve. When this condensate discharges through a valve, it quickly scores the valve and seat and the parts have to be replaced.

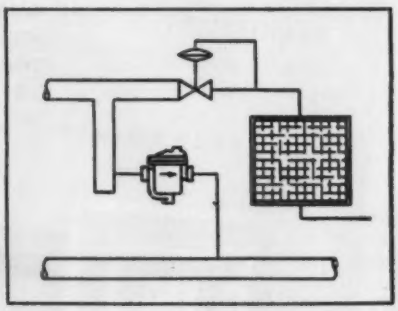


Fig. 1 is a simple but good example

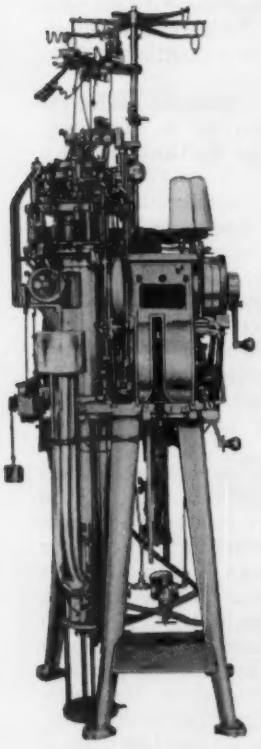


BRIGHT CLEAR

of a trap and pressure-regulating valve

# TORRINGTON NEEDLES

*on the Scott & Williams 474 Needle Seam-Free Nylon Machine*



***FOR EXAMPLE,*** have consistently demonstrated how they give the uniformity of stitch so important in producing top-quality high gauge hosiery.

"Quality merchandise has been all important in accelerating the fast growing consumer demand for seam-free hosiery," says Beale J. Faucette, Scott & Williams, Vice-President in Charge of Sales. "We have found Torrington Needles help materially in maintaining the top-quality standards our machines are built to achieve."

Absolute uniformity is only one of the features that have established Torrington Needles as the standard for top-quality performance. Special latch construction, special attention to temper and to finish also contribute to the better performance and longer life of Torrington Needles.

Whatever type of machine you employ, remember that consistent use of Torrington Needles pays off not only in a higher per cent of first-quality merchandise... but also in longer, uninterrupted needle performance... both of which contribute to greater profit! That's why so many leading mills have standardized on Torrington Needles.

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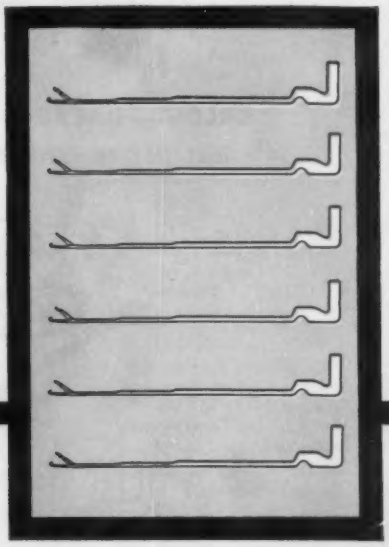

*There's a* **TORRINGTON NEEDLE**

*for every machine... for every type of knitting*

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of a trap and pressure-regulating valve hook-up. The diagram shows a dam welded into a large pipe.

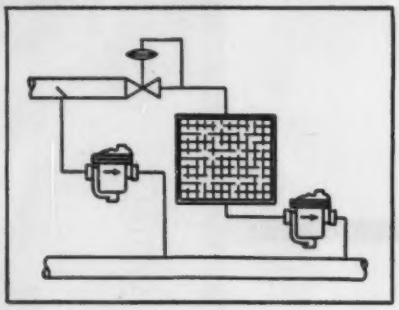


**Fig. 2** shows a drip pocket in a smaller line. Either method insures that the condensate gets to the trap. In selecting traps for this type of service, specify "with check valve."

A second source of maintenance trouble is the installation of an oversized pressure-regulating valve. A 2-in. steam supply line does not necessarily call for a 2-in. pressure-regulating valve; but the valve should be selected according to the steam per hour delivered to the end of the line.

If the pressure-regulating valve is oversized, it must be kept almost closed to maintain the reduced pressure required. This extreme throttling results in steam cutting and excessive maintenance.

An oversized reducing valve is sometimes evident by its chattering, which is caused by the throttled valve hitting the seat.

But even the installation of traps upstream and correct-size regulating valves may not be enough for proper operation of the steam line. If the units beyond the valve are subject to freezing conditions, the traps draining the units should be of adequate size to open the steam-supply pressure ahead of the reducing valve and still give the needed capacity at the reduced pressure.

Regulating valves are mechanical devices, and they can fail. If the traps draining the units have a maximum pressure rating of 150 psi., for example, and steam from supply lines at 250 psi. enters the system, the traps will fail to function. (A trap will open at pressure up to a maximum rating but will not open at pressures appreciably in excess of the maximum.) When traps fail to discharge, condensate backs up into the units.

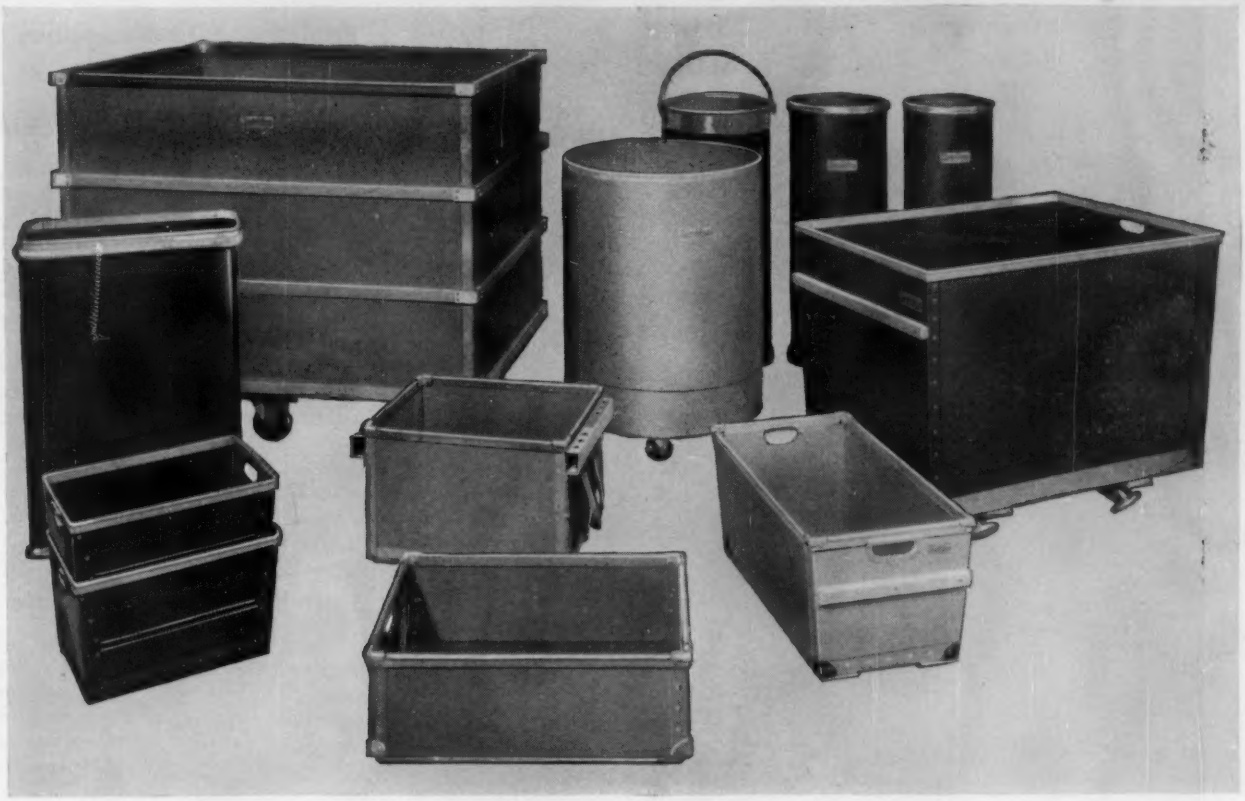
Under freezing conditions, condensate from trap failures backs up into heating units, and burst heaters result. *Armstrong Machine Works.*


**FIGHT POLIO!**

## Equipment and Supplies


CONTINUED FROM PAGE 150

*for every machine . . . for every type of knitting*



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**THEY'RE TOUGH,** have high resistance to impact and abrasion.

**THEY'RE SMOOTH,** won't splinter. Materials can't catch on them.

**THEY'RE LIGHTWEIGHT** for welcome ease in moving about.

**THEY'RE RESISTANT** to oils, greases and moisture—won't rust or corrode.

Spaulding Vulcanized Fibre Receptacles are available as boxes, barrels, baskets, cans and trucks in a wide range of sizes. Where standard items do not meet special needs, Spaulding will fabricate receptacles in exact conformity with your blueprints or specifications.
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FLOOR MAINTENANCE SYSTEM

## Equipment and Supplies

CONTINUED FROM PAGE 150

### Improved Printing Machine

The Printmaster 54, built by Etablissements A. Dick in France and Switzerland, features pneumatic control of print-roll pressures and an automatic pattern repeat working through a differential gear with motor drive. Doctor blades are operated by an independent 3-hp. motor.

No back grays are necessary with this machine; the fabric is held against a Darex blanket that is centered automatically. Improved blanket-washing facilities and fabric-drying equipment permit speeds up to 150 yds. per min. (T-24)

### Split-Base Filling Spindle

A new Hartford Machine Screw Co., Hartford, Conn., ball-bearing filling spindle with a split base uses the same precision-ground blade and the same prelubricated ball bearings of the Hartford spindle with plumbing adjustment. Where plumbing by shims is satisfactory, this split-base spindle brings installation economy and requires no lubrication for an estimated five years. (T-25)

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### Packaging Film

The successful completion of a field-testing program on a new 1-mil extruded-vinyl film for textile-packaging applications has been announced by Goodyear Tire & Rubber Co., Akron 16, Ohio.

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**TECHNICAL SERVICE**—Because SOLVAY'S Technical Service has a *separate* section that works *exclusively* with chlorine problems, SOLVAY can offer you chlorine Technical Service not ordinarily available. This *specialized* service is available without charge to users of SOLVAY Chlorine.

**SAFETY SERVICE**—SOLVAY has long been recognized as the leader in the development of safety programs. SOLVAY engineers were also pioneers in the development of special kits for emergency repairs to all types of SOLVAY Chlorine containers.

These SOLVAY Safety Kits may be purchased by SOLVAY Chlorine users . . . or in an emergency they may be borrowed without charge. Booklets describing these kits with detailed instruction are supplied at no cost. Also available without cost to SOLVAY customers, are Wall Safety Charts for employee instruction on safety practices . . . procedures to follow in an emergency . . . and location of nearest SOLVAY emergency kits.

**SOLVAY PROCESS DIVISION**
ALLIED CHEMICAL & DYE CORPORATION
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# TYPE K REBUILDING SERVICE

# PAYS OFF

## IN BETTER CLEANING RESULTS

**IMPROVED PERFORMANCE**

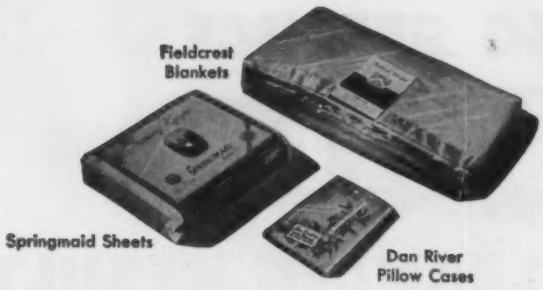
If your Type K Bobbin Cleaner has been in use for several years, it may need substantial repairs. On older machines the addition of late, improved, assemblies will greatly increase its efficiency and economy.

**UNINTERRUPTED SERVICE**

We acquire machines of various models and bring them up to date. We ship you one of these completely remodeled machines, set up to handle your bobbins, ready to be put into immediate operation in your plant. This rebuilding service has been in use for several years and mill men are highly pleased with its economy and convenience.

**WRITE FOR COMPLETE DETAILS ON THE MODERN REBUILT TYPE K**

THE Terrell MACHINE COMPANY, INCORPORATED
CHARLOTTE, NORTH CAROLINA




**YOU CAN TELL A HAYSSEN-WRAPPED PACKAGE BY THE WRAPPING IT KEEPS!**

**easy, automatic operation**

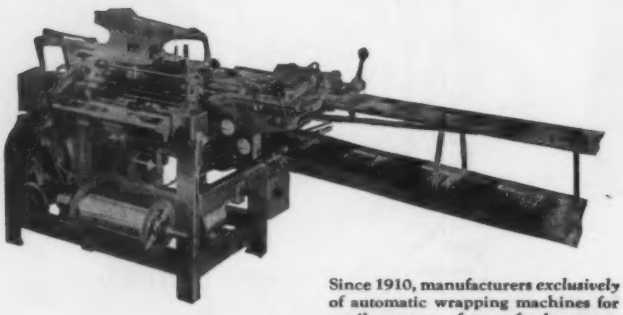
Regardless of size or shape, you get a neat, tight wrap on every package with a Hayssen automatic wrapping machine. *Wrapping's easier!* Also, production men report savings up to 80% over previous wrapping costs.

**simple to adjust**

No complicated adjustments from size-to-size on a Hayssen. No gears or sprockets to remove or change . . . no need for expensive mechanics to change size, either. So simple the operator does it on the job.

**more sturdily built**

Hayssen's simple, rugged design, using fewer moving parts, keeps these machines working and saving through years of dependable, trouble-free service. Every moving part is in the open and easily reached for maintenance and cleaning.



Since 1910, manufacturers *exclusively* of automatic wrapping machines for textiles, paper, frozen foods, meats, vegetables, and many other products. Whatever your product, Hayssen can solve your wrapping problem. WRITE today for more information.

**Hayssen MFG. COMPANY**
Dept. TW-1, SHEBOYGAN, WISCONSIN

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to sunlight and eliminates packaging problems such as splitting, brittleness, and shattering in cold and dry conditions. It has excellent printability and can be handled easily on most wrapping machines with only minor conversion. (T-27)

## Portable Abrasion Tester

Taber Instrument Corp., North Tonawanda, N. Y., has developed a portable abrasion-resistance tester, Model 140PT, which performs practically all the functions of the standard Taber Abraser but sells for less money.

Actual wear conditions can be simulated for upholstery and all types of clothing fabrics. Results are easily read, and minimum technical experience is necessary to conduct accurate tests. A vacuum unit to remove abrasion particles and a complete test kit are also available. (T-28)

## Viscometer

Operating on rotational principles, the Brookfield viscometer, available from Brookfield Engineering Laboraties, Inc., 240 Cushing St., Stoughton, Mass., provides quick, accurate viscosity determinations of materials from 1- to 32-million gps.

The torque on a spindle rotating at a constant speed is measured by a calibrated spring. Dial readings, directly in centipoises, are obtained in a matter of seconds. The Brookfield Helipath Stand, when used in conjunction with a bar spindle, makes possible precise testing of highly plastic materials regardless of degree of thixotropy.

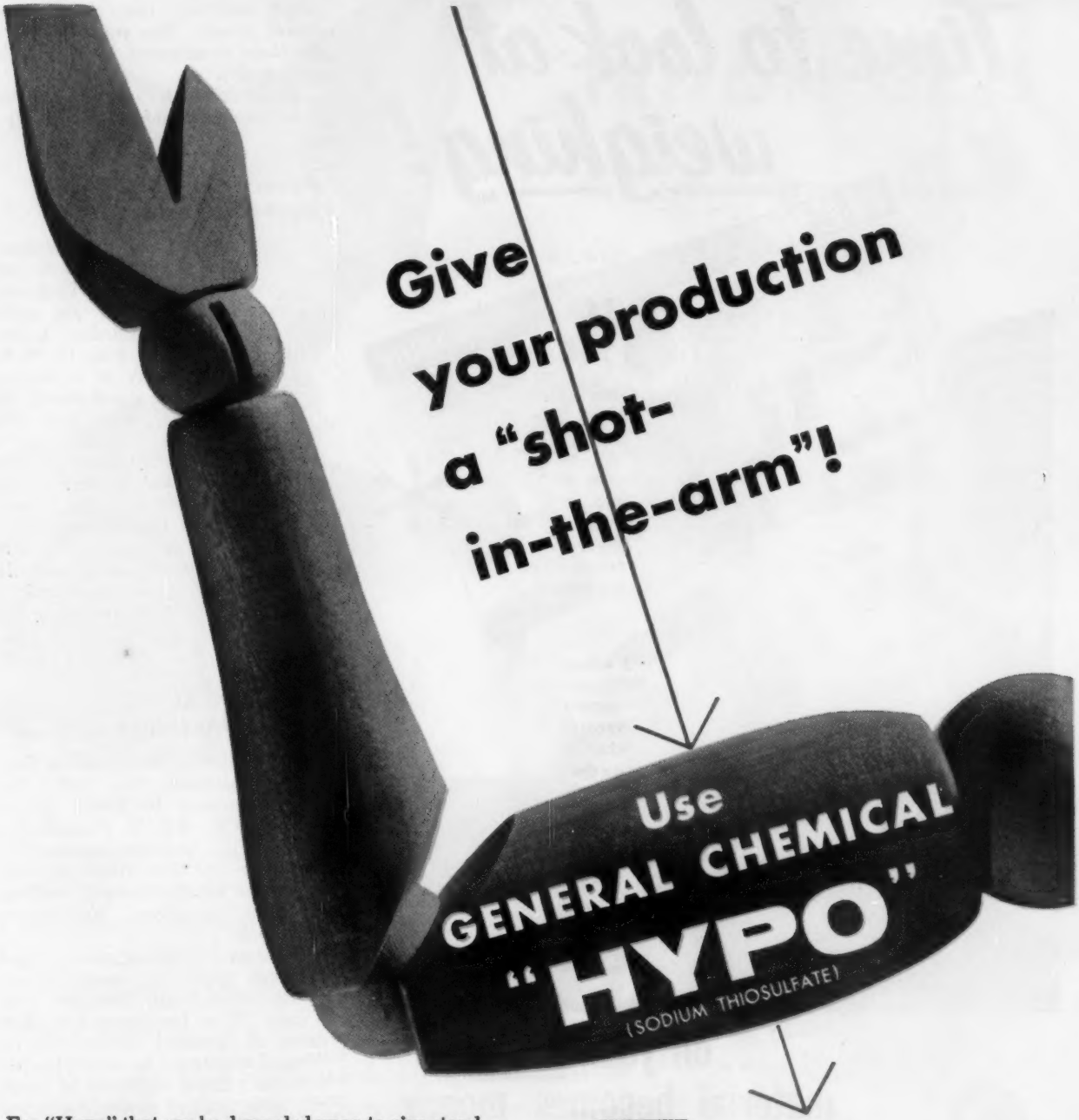
The motor-driven stand lowers the rotating spindle on the viscometer through the test material; so nonflowing substances such as gels, pastes, and greases can be measured. (T-29)

## Hydraulic Lift Truck

Improved hydraulic lift trucks for handling loom beams, warp beams, rolls of cloth and coated fabrics have been developed by Standard Mill Supply Co., Box 1534, Providence, R. I. The trucks are constructed of steel and are easily handled in narrow aisles and around posts.

The cradle that supports the load swivels on its base, and the load can be lowered into position gradually by hydraulic action. The truck can be maneuvered at any desired angle; practically all lifting on the part of the operator is eliminated.

When the center shaft is released, the center wheels are raised and the




For "Hypo" that can be depended upon to give stand-out performance, order after order, specify General Chemical.

With its characteristic high quality and uniformity, General's Sodium Thiosulfate has a reputation for giving consistently good results. And, it is available in *two* forms—from three key locations—in the East, Midwest and Pacific Coast.

***So, take your choice:***

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| —two grades; | —water-free; |
| Prismatic Rice (thru 4 on 14 mesh) | Assays 97% |
| Selected Universal (thru 8 mesh) | Min. $Na_2S_2O_3$ |

But, whichever you prefer, specify General Chemical "Hypo." For prompt shipments, samples, or further information, just 'phone or write your nearest General Chemical office.

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## ...on your scales material becomes money

Look to Toledo for new ideas to help you control costs! Good weighing is a fundamental of good cost control; basic accounting records of materials received, shipped or transferred start at the scale. In Toledo's complete line there is a modern answer to every problem of industrial weighing . . . in standard, or in custom-built units. When you look at costs . . . it's time to look at your weighing. There's a Toledo office as close as your phone. Toledo Scale Company, Toledo 1, Ohio.

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Dials on new Toledos can be faced any of 8 ways for operator convenience or full 360° swivel.

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entire load then rests on the four swivel wheels. The truck can then be easily maneuvered laterally or at right angles.

Six models with capacities to 4,000 lbs. are being manufactured. **(T-30)**

## Accessories for Strength Tester

Two accessories for the Autodinamografo, an automatic strength and elongation tester made by Fabbriche Elettrotecniche Riunite, are available from Stellite American Corp., 60 E. 42nd St., New York 17, N. Y.

The first accessory is a twisting device that inserts approximately 2½ tpi. into filament yarns. With this twist, yarn slippage is avoided and a perfect break is obtained with no change in the characteristics of the filament yarn. The tester can be used with or without this attachment.

The second accessory is a fourth scale, which permits spun- and filament-yarn testing up to a breaking strength of 2,500 grams (about 5½ lbs.). **(T-31)**

## Class 39500 Sewing Machines

A new line of curved-needle overseaming machines, Class 39500, has been announced by Union Special Machine Co., 400 N. Franklin St., Chicago, Ill. Available machines include two- and three-thread units designed to handle seaming, welting, hemming, overedging, and serging operations.

Features: (1) fast acceleration and the high speed; (2) completely enclosed, automatically lubricated overseamer; (3) a four-throw crankshaft drives all operating mechanisms; (4) external adjustment for needle bar permits exact lateral alignment of needle and adjustment of needle height; and (5) thread controls are easily accessible on submerged, semisubmerged, and nonsubmerged installations. **(T-32)**

## Pilling, Abrasion Tester

A combination pilling and abrasion tester has been developed by Fabric Development Tests, Box 45, Brooklyn 32, N. Y. The tester is intended for use in fabric development, mill and finishing-plant control, and acceptance testing.

Known as the PA Model of the Appearance-Retention Tester, which was developed for the U. S. Navy Clothing Supply Office, it has shown excellent correlation with actual pilling and wear. Most pilling tests take

# TRITON GR-5

**THIS NEW WETTING AGENT**

**ALSO GIVES YOU HIGHLY**

**EFFECTIVE REWETTING**

**EVEN AFTER PROLONGED**

**FABRIC STORAGE**

TRITON GR-5 is not only soluble in water in all proportions but is stable—particularly to lime and magnesium salts—and electrolytes. And TRITON GR-5 is economical, too. But that's only half the story.

TRITON GR-5 is an excellent *rewetting* agent. It wets back after it has dried into the fabric, permitting high absorption under normally difficult conditions, and maintaining fabric absorbency through prolonged storage.

What's more, TRITON GR-5 puts a real sales feature into towelings. They are extra absorbent *when new*—don't need usual pre-use washings housewives complain about.

**CONSIDER THE SPECIAL FEATURES OF THIS ECONOMICAL NEW WETTING-REWETTING AGENT; THEN CALL YOUR NEAREST ROHM & HAAS OFFICE.**

CHEMICALS FOR INDUSTRY

**ROHM & HAAS COMPANY**

**WASHINGTON SQUARE, PHILADELPHIA 5, PA.**

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TRITON *is a trade-mark, Reg. U.S. Pat. Off. and in principal foreign countries.*

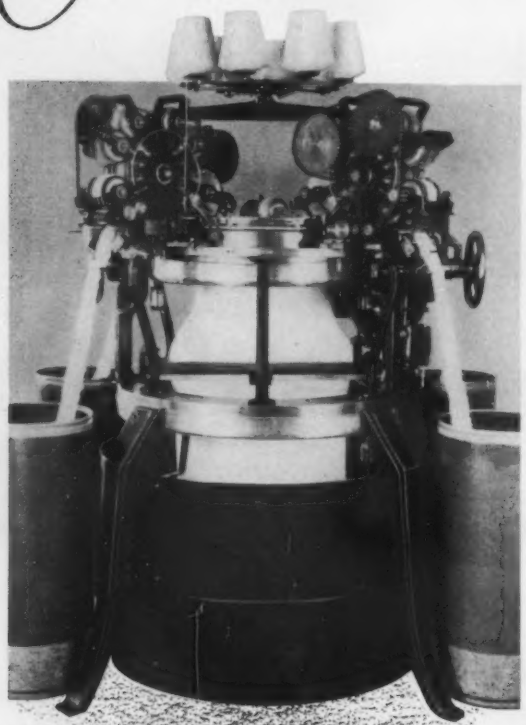
To merchandisers who want to lead the field!

smart all eyes are on . . .

THE

# WILDMAN

## KNIT PILE FABRIC MACHINE



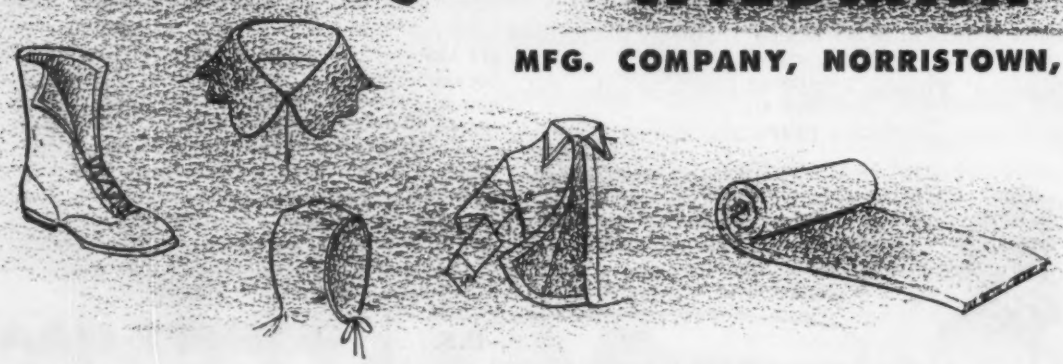
Just look at the items that can be processed on this new machine, and they represent only a few of the unlimited variety of fleecy and fur-like fabrics that may be produced.

The unusual fibre carding attachment and needles can handle natural fibre staple as well as staple made of Orlon, Nylon, Acrilan, Dynel or any of the other synthetic fibres, or combination of natural and synthetic staple. Staple size used may range from ¾ inches and up.

Be a leader in your field. Know now the applications of this machine for your markets. You'll find it an efficient adjunct to standard production operations . . . Inquire today for complete details.

**WILDMAN**

**MFG. COMPANY, NORRISTOWN, PA.**



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**FOR *ONE* THING—**

1 to 5 mins. to run and are then quickly evaluated by comparison with

# A WONDER at

fastening rolls . . .

at holding ends
after slashing . . .

holding cloth to table in
screen printing . . .

## U. S. HOLDTITE®

line of pressure-sensitive tapes

U. S. Holdtite® are the amazing wonder-working pressure-sensitive tapes for the textile industry! Applied with just finger pressure, they are the textile man's indispensable work-savers. The applications shown above are just a few of the many, many ways U. S. Holdtite Tapes aid the textile worker in manufacturing and finishing cloth. They are so much a part of the textile industry that the wonder is how workers ever got along without them. And they are well-named—because once a U. S. Holdtite tape is applied it never comes loose by itself; it must be removed. U. S. Holdtite tapes strip clean when your operations are completed. They are tapes that do so many things so well...so be sure to specify U. S. Holdtite, a name that is respected by all industry. Order now from your distributor for immediate delivery or from any of our 27 District Sales Offices.

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ON A FLOOR OF

foot-friendly

NORTHERN HARD MAPLE

Foot-comfort isn't *everything* in a mill floor, of course. But you *do* get it in resilient, smooth, Northern Hard Maple. And with the unsurpassed *comfort*, Maple pays lifelong dividends of easy, brush-and-broom cleaning, low-cost maintenance, simple and swift refinishing. It fights traffic wear—scraping and scuffing and denting. It creates no dust or lint, and "there's always a new floor underneath." We're sure these are the reasons why Judson Mills chose MFMA-warranted Northern Hard Maple, as have so many other textile operators. MFMA inspection and grading care is maintained to everlastingly guard and justify your valued high opinion of "the finest floor that grows."

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1 to 5 mins. to run and are then quickly evaluated by comparison with a photographic standard. Warp and filling are tested at the same time.

Additional features; nondestructive testing of pilling on garments, a simple method of preferentially coloring pills to make them easily visible, uniformly mounted samples without tension, a magnetic sample-holder control, and an automatic timer. (T-33)

**LIFE AMONG TEXTILE WORKERS,** by William Hays Simpson; Washburn Printing Co., Charlotte, N. C.

Dr. Simpson is a Duke University political scientist who spent three summers visiting cotton-mill workers in England, Canada, and The Netherlands. The book describes the home living conditions and relationships between workers and employers in the three countries. Of 251 Dutch workers visited, none owned automobiles or electric refrigerators. Of 499 English workers, none had an electric refrigerator but 10 owned automobiles. Comparisons are also made with Southern workers.

**TEXTILE WORKERS' JOB PRIMER,** Supplement II, by Solomon Barkin; Textile Workers Union of America, 99 University Place, New York 3, N. Y.; paper, 56 pages, 75¢.

Part I of this union booklet was published about a year ago for use by union leaders in developing material to use in controversies concerning workloads. This supplement is intended to help the users of the Primer to apply the material presented in the Primer. It is an outline of basic textile calculations from opening through weaving—mainly creeling and doffing times and frequencies.

**ELECTROMETRIC pH DETERMINATIONS,** by Roger G. Bates; John Wiley & Sons, Inc., 440 Fourth Ave., New York 16, N. Y.; 331 pages, $7.50.

Roger G. Bates is a chemist with National Bureau of Standards. His



book describes approved techniques for pH determinations, points out

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## THREAD GUIDES

**Long Life • Accuracy**

**Uniformity • Volume Production**

***A choice of three materials to meet your specific requirments***

| Property | AlSiMag 192 | AlSiMag 193 | AlSiMag 513 |
|---|---|---|---|
| Hardness, Mohs' Scale | 8 | 8 | 9 |
| Resistance to Impact, Charpy-ft. lbs. | 6.5 | 6.5 | 6.3 |
| Flexural Strength PSI | 20,000 | 20,000 | 40,000 |
| Compressive Strength PSI | 100,000 | 100,000 | 140,000 |
| Density PCI | .144 | .144 | .123 |
| Water Absorption | Nil | Nil | Nil |
| Resistance to Heat | 1000° C. | 1000° C. | 1100° C. |
| Thermal Conductivity | .012 | .012 | .020 |

All AlSiMag Guides are **HOMOGENOUS** and **CHEMICALLY INERT.** At room temperature, they are resistant to all alkalies and to all acids except the fluorines.

**ALSIMAG 192 (Ivory Color). Hard and long-lived.** Used by practically every major producer of synthetic yarns. Non-conductor of electricity.

**ALSIMAG 193 (Metallic Gray).** Conductor of electricity. Otherwise same physical characteristics as AlSiMag 192. Used for dissipating static charges. Conductivity is measured in resistance, which our experience indicates is less than one megohm per centimeter cubed.

**ALSIMAG 513 (Light Pink Color).** Super hard and highly resistant to cracking and chipping. Great mechanical strength. Its cost is justified where excessive wear is experienced or where mat finish must be maintained under severe conditions.

**DIMENSIONAL ACCURACY.** AlSiMag thread guides are made to standard tolerances of ±1-½%, none less than ± .010" (closer than usually offered in the field.) Can be furnished to almost any degree of dimensional accuracy. Especially close tolerances involve commensurate cost.

**FINISH.** Proper thread guide finish is very important in maintaining exact yarn tension control. AlSiMag guides offer a choice of mat, smooth, or highly polished finishes. Measured in micro inches, R. M. S., finish on AlSiMag guides can be duplicated from order to order.

**TEST SAMPLES**

from files at no cost.

Samples to your design at reasonable cost.

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**CHATTANOOGA 5, TENNESSEE**

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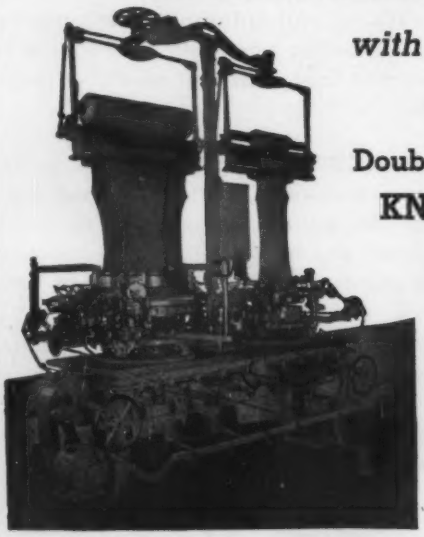
# BIG WEEKLY SAVING PER OPERATOR



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**KNITTING MACHINE**

New stop motions and furnishing wheels provide the profitable answer to reducing cloth imperfections and needle breakage—imperfections are caught before they get into the cloth! Actual installations are showing remarkable savings in knitting various types of material. SOME MILLS CLAIM THEY HAVE CUT PRODUCTION COSTS IN HALF . . . OTHERS REPORT SAVINGS UP TO $600.00 PER WEEK PER OPERATOR, over old machines. All this PLUS AN IMPROVEMENT IN FABRIC QUALITY!

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LET US SHOW YOU THIS MONEY-MAKING MACHINE IN PRODUCTION

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book describes approved techniques for pH determinations, points out the limitations of the techniques, lists the most frequent troubles that affect pH meters, and explains the functions of flow cells, controllers, and automatic valves that are used in pH control. The theoretical aspects of pH are discussed in the first six chapters.

**SKINNER'S WOOL TRADE DIRECTORY OF THE WORLD, 1954**; Thomas Skinner & Co. Ltd., 330 Gresham House, Old Broad St., London E.C. 2, England; cloth, 1,174 pages, three pounds, five shillings ($9.10).

Skinner's annual directory has been brought up to date. As usual, wool merchants and top makers, mills, and wool dyers in every country are listed; and statistics on the field are included.

## Power Maintenance

CONTINUED FROM PAGE 99

outgoing-oil temperatures. The 800-kw.-condenser hourly observations and records include barometer reading and vacuum in inches, temperatures of incoming and outgoing raw and filtered water, and condensate temperatures.

Hourly records are kept of boiler steam pressures and temperatures at the header and beyond the reducing valves, exhaust steam pressure, feedwater and fuel-oil temperatures and pressures, and suction-oil temperatures. Steam-flow readings in pounds are recorded at the start and close of each shift. Water evaporated per pound of fuel burned, also recorded on a shift-to-shift basis, gives a running check on power-plant economy and automatically points out abnormal conditions.

### Diesel Inspection Tied to Routine Operation

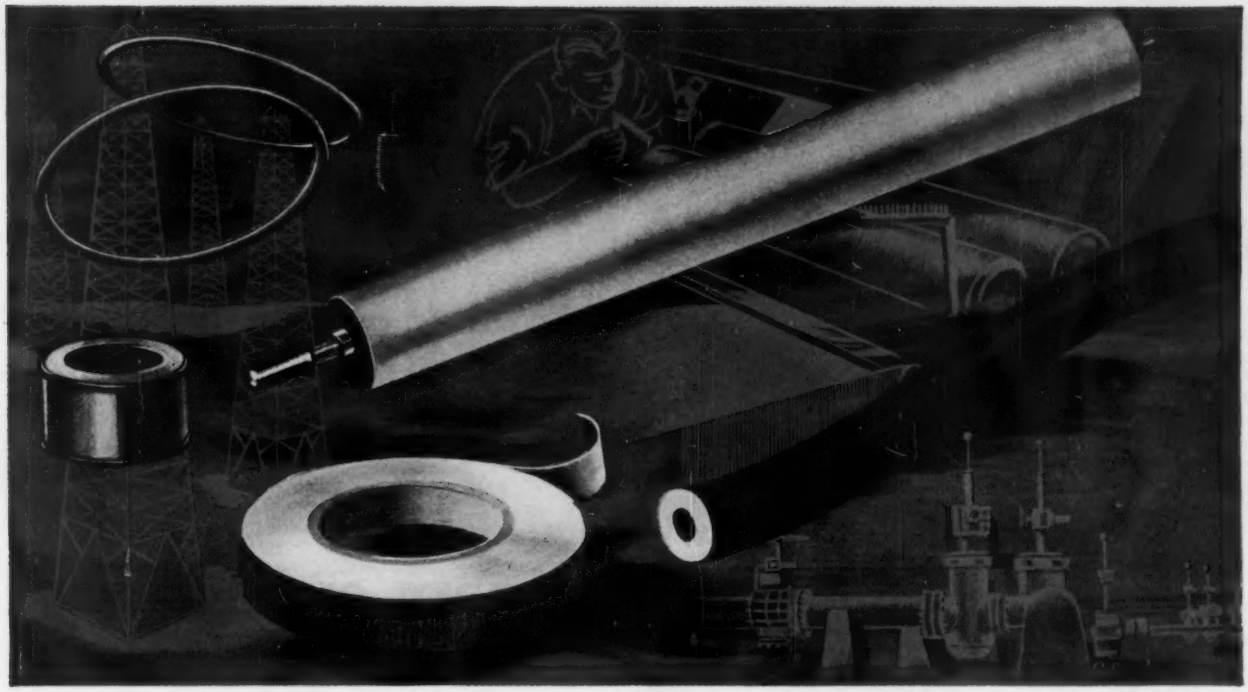
Diesel-engine inspection is closely tied to routine operation. Hourly records are kept of the temperatures of incoming and outgoing water and oil and of lubrication-oil and bearing-oil pressures. Fuel-oil meter readings are recorded daily. Cylinder-exhaust temperatures show if all cylinders are firing. Main-housing coverings on the manifold side of each crank-pin bearing are felt regularly during operation to check heating. Lubrication oil is changed every 150 hrs. on the 60-kw. unit.

Only minor inspection problems are present in a.c. generators at low voltages like 600 v. At Ellis, generator

design at reasonable cost.

Minnesota Mining & Mfg. Co., 367 Grove Street, St. Paul 1, Minn.; Cedar 3071. NORTH WEST: Minnesota Mining & Mfg. Co., 320 Shaw Road, S. San Francisco 10, Calif., Plaza 6-0800. SOUTHERN CALIFORNIA: Warren L. Thompson, 5603 N. Huntington Drive, Los Angeles 32, Calif., Capitol 1-9114. SOUTH CENTRAL: John A. Green, 6815 Oriole Drive, Dallas 9, Texas, Dixon 9918. SOUTH EAST: Joe E. Spearman, American Lava Corp., Chattanooga 5, Tenn., 5-3411. ALL OTHER AREAS: J. B. Shacklett, American Lava Corp., Chattanooga 5, Tenn., 5-3411. CANADIAN REPRESENTATIVE: Ian M. Haldane & Co., P. O. Box 54, London, Ontario. CONTINENTAL EUROPEAN REPRESENTATIVE: P. C. Huguenin Luzern, Gerbergasse 6, Luzern, Switzerland.


**Announcing...** PARACRIL D



## the most oil-resistant nitrile rubber ever marketed!

Here is a new oil-resistant chemical rubber you can rely on for the *most demanding* applications—developed *specifically* to meet today's needs for increased resistance to a wide variety of oils and solvents.

New Paracril D has unequalled resistance to oils, fuels, many hydraulic fluids, esters, aromatic hydrocarbons, and chlorinated organic liquids.

This special acrylonitrile-butadiene rubber also offers good tensile properties, high resilience, and excellent abrasion resistance. It dissolves in a variety of solvents to give solutions with low viscosity, excellent adhesive properties—ideal for cement applications.

You'll find Paracril D extremely advantageous for hose, seals, packings, rolls, and a wide variety of molded, calendered, and extruded articles—versatile enough for use practically wherever a highly oil-resistant rubber or rubber-like material is required.

*Write today for complete information* on this highly important new synthetic rubber and the *many* advantages it offers.

**Also inquire about the many other types of Paracril® made by Naugatuck Chemical.**

Naugatuck Chemical

Division of United States Rubber Company
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## "Dated" instruments drain away dollars

Instruments can become outmoded . . . just like automobiles and ideas. Progressive instrument development is constantly making many older designs obsolete . . . and such obsolescence can be a steady drain on profits.

### Modern instruments save money

Honeywell engineers are proving this fact every day—in a growing number of plants, on all types of processes. Where out-of-date controls have been replaced by modern Honeywell instrumentation, economy-minded engineers and management men have really opened their eyes. And with good reason, for—

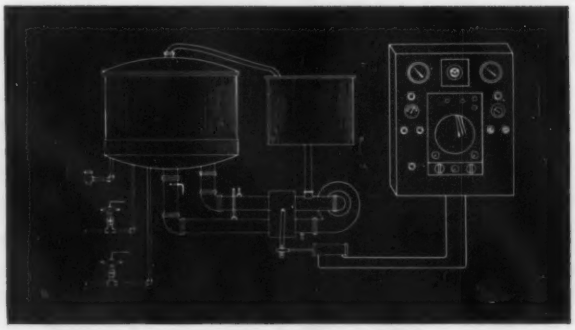
- Modern Honeywell instrumentation saves labor. Centralized control, automatic time-cycle systems, and other recent control concepts save countless wasted steps . . . reduce routine man-hour expenditures.
- Modern Honeywell instrumentation cuts maintenance costs. It affords longer, uninterrupted operation . . . is designed for easy service . . . requires minimum attention.
- Modern Honeywell instrumentation reduces rejects. It maintains the tighter process tolerances demanded by today's more exacting specifications.
- Modern Honeywell instrumentation improves product quality. Precision measurement and control remove any chance of error or guesswork in critical processes.
- Modern Honeywell instrumentation makes cost accounting more accurate than ever before. Everything is a matter of record.

### An investment that really pays off

Just being "instrumented" is not enough. You can get more out of your instrument dollar, from both a product and service standpoint, with Honeywell instrumentation . . . the ultimate in engineering and design . . . insurance for your equipment investment.

Replacing with Honeywell is one of the best ways to invest your modernization appropriation. A Honeywell application engineer will gladly survey your present plant instrumentation . . . give you a practical recommendation that will make dollars and sense. Give him a call . . . he's as near as your phone.

# Colors controlled more accurately, steam saved ...with Brown

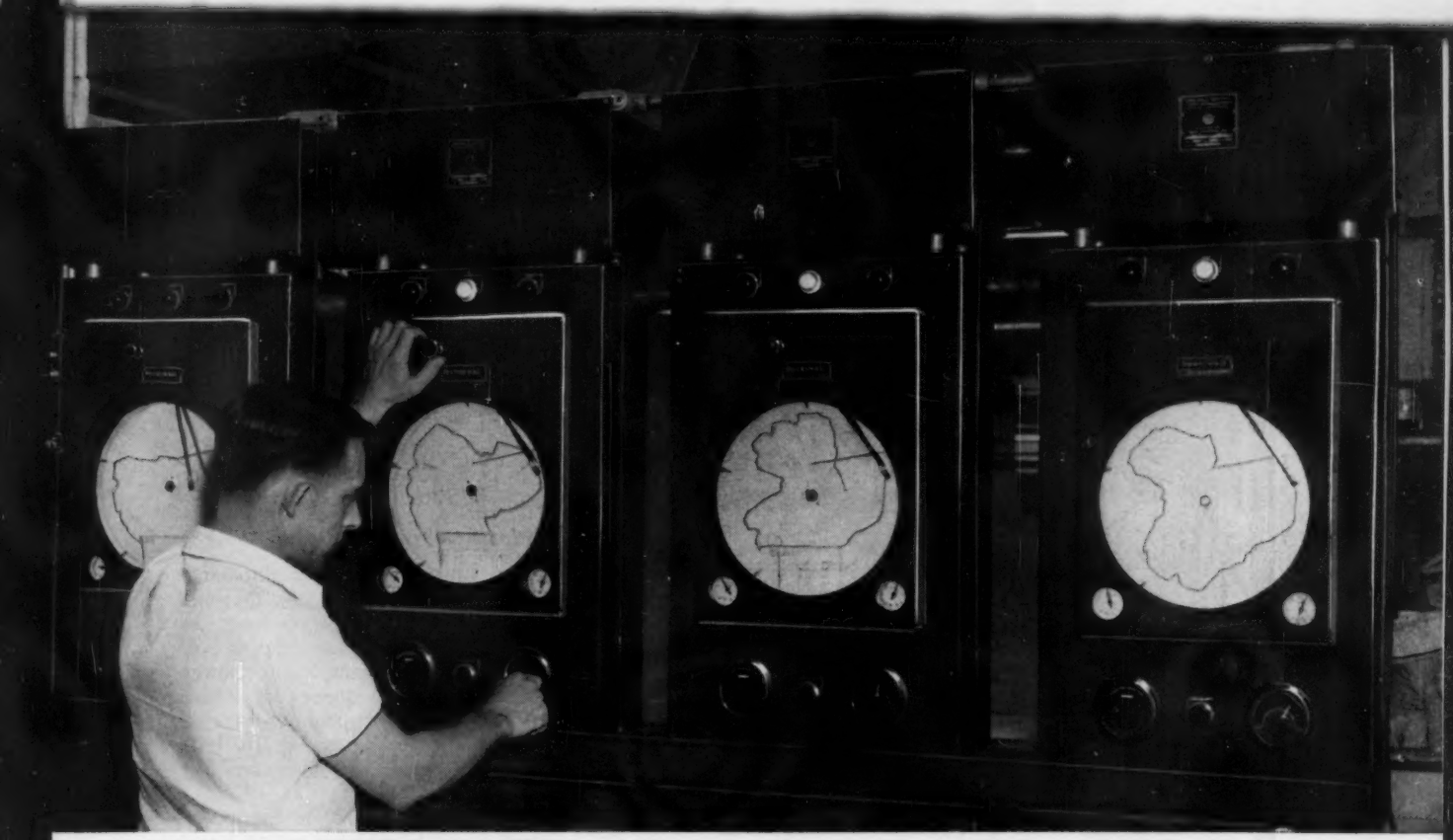


*Package Dyeing Control System . . . a complete, integrated unit with all necessary gages, timers and interlocks . . . gives the operator full selection of programming of each cycle. Switchover to manual control can be made simply and quickly whenever desired.*



PAGE FENCE -Since 1883

and exciter windings are given annual insulation tests to check the condition



*A prominent mill uses these four Dye Kettle Controllers to watch over the dyeing of worsted fabrics. Dyers can readily set time-temperature cycles to get accurate color match when desired, and to assure adherence to prescribed dyeing schedules.*

# *dye temperature program systems*

THE GUESSWORK is gone from dyeing when Brown Program Control is on the job. With this simple but versatile instrumentation, the dyer gains fully automatic control over variables which critically affect color quality. He can achieve the exact color he wants on every batch . . . with minimum supervision . . . and at the same time hold steam costs to the lowest level.

By means of a few simple control settings, the dyer selects the rate of heating, holding temperature and process time he wants. The Brown controller then takes over. With no further attention from human workers, it brings the dye liquor up to temperature at the prescribed number of degrees per hour . . . holds it accurately at temperature for the desired time . . . then automatically shuts down the kettle.

This modern way to regulate dye temperature cycles is paying real dividends in many progressive mills. It safeguards quality . . . by maintaining closer limits than could be possible under human supervision. It reduces costs . . . by making the most effective usage of process steam. And it speeds production . . . by taking routine burdens off the dyer's shoulders, and freeing him for more productive duties.

Several types of instrumentation are available . . . the Dye Kettle Controller for piece dyeing, and the Package Dyeing Control System for package operations. Both are complete, factory-assembled systems, readily applied to your own production equipment. For a discussion of how your mill can utilize this up-to-date control, call your nearby local Honeywell sales engineer. He's as near to you as your phone.

MINNEAPOLIS-HONEYWELL REGULATOR CO., *Industrial Division*, Wayne and Windrim Avenues, Philadelphia 44, Pa.

● **REFERENCE DATA: Write for Data Sheet 8.3-1, "Dye Kettle Control System"... and Data Sheet 8.1-12, "Package Dyeing Improved."**

MINNEAPOLIS
**Honeywell**
BROWN INSTRUMENTS
*First in Controls*

PAGE FENCE - Since 1883

• AMERICA'S FIRST WIRE FENCE •

• Page Chain Link Fence, pioneered by Page and made only by Page, is quality controlled from raw metal to erected fence. Whether you choose heavily-galvanized Copper Bearing Steel, or long-lasting Stainless Steel, or corrosion-resisting Aluminum, you'll have a rugged fence on sturdy metal posts deep-set in concrete. Choose any one of 8 basic styles, varied by heights, types of gates, posts, top rails and barbed wire strands for extra protection. And to be sure of reliable workmanship your fence will be expertly erected by a specially trained firm. For helpful Page data and name of member nearest you—

*Write to PAGE FENCE ASSOCIATION in Monessen, Pa., Atlanta, Bridgeport, Chicago, Denver, Detroit, Los Angeles, Philadelphia, New York or San Francisco.*

PRODUCT OF PAGE STEEL & WIRE DIVISION OF AMERICAN CHAIN & CABLE COMPANY, INC.

and exciter windings are given annual insulation tests to check the condition of stator coils. Motor coils as well as the brushes bearing upon the commutator bars of exciter armatures require weekly examination of spring tension. This examination is made by feeling the tautness of these items. Generator bearings are checked by hand for heating.

Transformer-insulating-oil samples are taken from the step-up and step-down units at the supply and receiving ends of the 2,400-v. line to the farther mill. These samples are tested for breakdown about once a year by an outside agency. The maximum potential applied is 30,000 v.

### Shop Maintains Building

Power-plant-building maintenance is under the direction of the mill master mechanic. Switchboard instruments give complete readings, including voltage, amperage, power-factor, wattage, frequency, watt-hour integration, and ampere readings on each mill feeder. Readings for both hot- and cold-water flows are also provided.

The moderate size of the power plant warrants replacement of lamps individually, rather than on the group-replacement plan.

Spare parts on hand include exciter coils for each steam-driven generator, brushes for commutators and slip rings, parts for turbine governors, bellows for certain reducing valves, spare oil-pumping equipment for turbine lubrication, extra armatures for exciter use, and the usual fuses.

The plant is acquiring more and more testing equipment and instruments, including various kits for use in the boiler department. A stethoscope and other light apparatus for studying sound vibrations, an indicating pyrometer, gauges, and a clamp-on ammeter to examine current flow in cables are readily accessible to shift operators.

Under development is a prospective card-index system to point out dates and instructions for inspection and maintenance work.

## Air-Conditioning Maintenance

CONTINUED FROM PAGE 91

or algae on the inside of the water chamber. The access door is then closed and sealed, and the circulating pump is started again.

As an added precaution, an employee cleans the strainer in the circulating pump once a day to prevent any sediment clogging the water-spray nozzles. Once every two months, the intake-air filter from outdoors is

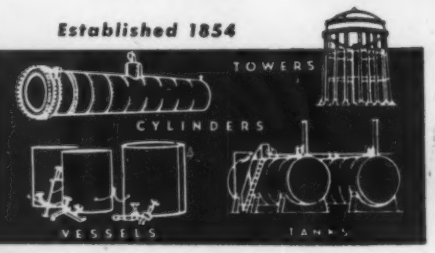
1854 R.D. COLE Centennial 1954

*TEN YEARS before the BATTLE OF ATLANTA*

IN 1854, ten years before the Battle of Atlanta, we started out as a small iron-works. Many communities and many mills secured their first elevated tanks for water supply from us. For the privilege of celebrating our Centennial, we express our appreciation for the friendship of four generations of customers, and the loyalty of four generations of workers.

R.D. COLE MANUFACTURING CO. NEWNAN, GA.

Established 1854



First in Controls

# a Custom Tailor in the Starch Business

When it's a question of "fit", proper tailoring is vitally important in solving your corn starch and dextrine problems. From the adhesive on the back of an envelope to the sizing in your suit of clothes, there's a need for a special corn starch or dextrine product. Just having a good line of starches and dextrines is not enough.

That's why Stein, Hall & Co., Inc. and American Maize-Products Company have been working together for 25 years. The combined facilities of these two big companies so closely allied, assure you of the finest corn starch and dextrine service available.

Every starch problem is analyzed by skilled technicians in our Research and Development Laboratories to produce a specific corn starch or dextrine product to meet your individual requirements. In addition, every salesman is himself a technician trained in your field.

Whatever your needs, we can assure you of ample and uniform supplies of high quality starches at mill prices. Call Stein Hall for quotations, samples or analysis of your requirements.

**STEIN SH HALL**

285 Madison Avenue New York 17, New York

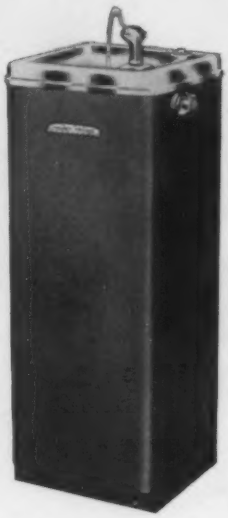
*Sales and Service Offices in principal cities*

AMERICAN MAIZE-PRODUCTS CO.
250 Park Avenue, New York, N. Y.

***When you buy from Stein Hall, you buy American Maize.***

*safe*

**FOR TEXTILE MILL INSTALLATION**



**EXPLOSION-PROOF**
U/L approved for varied types of hazardous installations. Water-cooled condenser. Storage tank for better performance, greater economy!

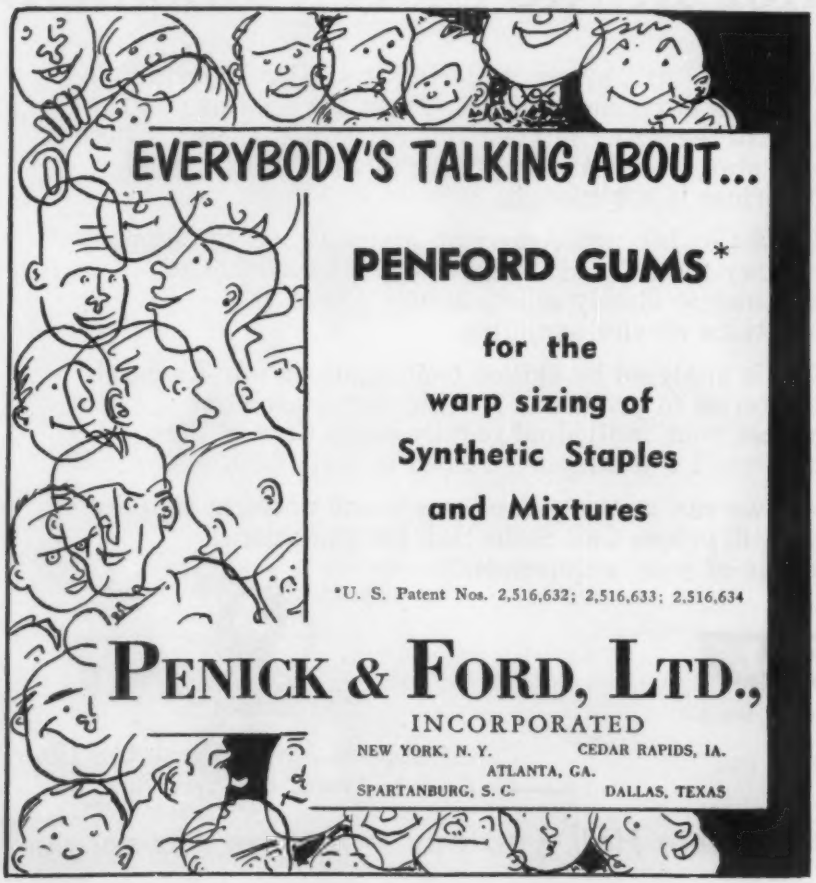
Combustible dust or ignitable fibers present no danger to this Halsey Taylor Explosion-Proof Cooler, designed for safety in textile mills and approved by the Underwriters' Laboratories. Power supply line is enclosed in rigid conduit, connections are insulated and many other safety features are factory-supplied and factory-tested, so that *you can be sure it's safe when it's a Halsey Taylor.*

In addition, the Halsey Taylor line includes cafeteria coolers, as well as wall fountains and pedestal types for office use.

**The Halsey W. Taylor Co., Warren O.**

*The nameplate that signifies safety ...* HALSEY TAYLOR

TW-10





cleaned or changed. The recirculated air-filter screen is cleaned with a vacuum cleaner once a week by an employee whose regular duties include the job.

### System Cleaned During Vacation

During the vacation-period shutdown each year, the entire air-conditioning systems are cut off and both the inside and outside of all equipment are completely cleaned. The air and water chambers are thoroughly cleaned and dried, and any metal surfaces that come in contact with moisture or water are painted with a special waterproof paint. Each air-circulating fan, together with its bearings, blades, and drive, is thoroughly cleaned, checked for wear, and properly lubricated. The louvers in the duct system are removed, and the interiors of the ducts are cleaned with a portable vacuum cleaner by a trained service man.

The air-conditioning systems also include other mechanical and electrical equipment such as water-cooling towers with necessary fans, chiller units, refrigeration machines, and water-circulating pumps. The filing system in the maintenance engineer's office and periodic inspections insure cleaning and lubricating of all this mechanical and electrical equipment.

Our preventive-maintenance system includes inspection of the operation of the air-conditioning units once a day and cleaning and lubrication of the motors, fans, and bearings every six months. The regular oiler in the maintenance department performs this function.

### Maintaining Dry-Duct Systems

The dry-duct system, sometimes called the semi-central-station air-conditioning unit, is more economically operated and less costly to install in older buildings than the central-station type. We are now installing this type of system in our card room to replace humidifier units that were very costly to operate and maintain.

The dry-duct units require the customary daily inspections and checks for proper temperature and humidity. Each day the air and water drain valves on the humidifier pipe lines and control instruments must be opened to remove any sediment or dirt accumulation.

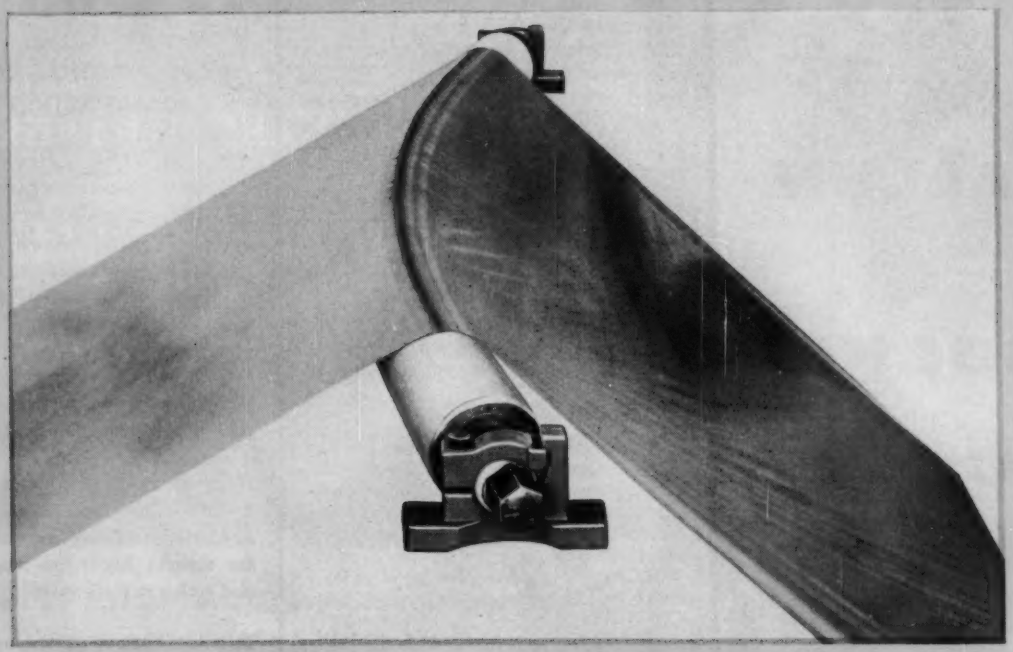
Choice of atomizers is important for easy maintenance. The most economical and trouble-free type is the automatic, self-cleaning atomizer. With this type, no maintenance program is required except an occasional cleaning of lint or fly from the nozzles.

During the vacation-period shutdown, the ducts should be cleaned

Mount Hope SYSTEM

INCORPORATES

# "Free Wheeling" Expanders TO HELP YOU BEAT COMPETITION!



**THE MOUNT HOPE "FREE WHEELING" EXPANDER** holds your fabric to full width and free of wrinkles.

**For Maximum Production—Lower Cost—Minimum Seconds—USE the Complete MOUNT HOPE SYSTEM**

*Write for a Production Cost Survey of your plant at no obligation.*

*Originator of Modern Expanders*

*Leader in Cloth, Paper and Plastic Handling*

MOUNT HOPE MACHINERY COMPANY

15 FIFTH STREET, TAUNTON, MASS.

# What mill people say ABOUT ALLEN SOCKET SCREWS

"Cotton mills are full of Allen screws, and those not using them are just beginning to find out how good they are and will be using them soon."

—Superintendent of leading Atlanta Cotton Mill (name on request)

ALLEN MANUFACTURING COMPANY

Hartford 2, Connecticut, U. S. A.


and the water storage tanks drained and thoroughly wiped out. The mechanical-department oiler should lubricate the fans and motor bearings every six months.

### How To Care for Windows And Packaged Units

Little maintenance is required for the window air-conditioning units and the packaged units. On the first of April, the motor-driven fans and the coils should be cleaned and the bearings lubricated. Every two months during the summer, either clean or replace the filters. On the first of November, when the equipment is shut off for the winter months, clean and paint the corroded parts with a rust-preventive paint and cover the outside parts of the window units with an oilcloth to protect them from winter conditions.

---

## Embossed Printing

CONTINUED FROM PAGE 120

color film and the pressure used in application must be carefully controlled.

### Watch for Defects

The engraved cylinder and bowl must be perfect because defects are much more noticeable in colored work than in plain-white embossing. Defects in the bowl caused by slubs, seams, or loose threads show up readily.

To prevent excess color from staining the cylinder, a paper back gray, wide enough to take care of any irregularities of position or width, is run in with the cloth. A 15-lb. kraft paper or a 40-lb. newsprint is suitable.

While the paper adds somewhat to the expense of the operation, an added advantage of its use is being able to shift the cloth from one side of the bowl to the other so that the wear is distributed over a wider area.

Several companies produce suitable colors for this process. The colors may be used as received or cut back with clear resins. The solvents used require an exhaust system; and because they have a high boiling point, the vapors condense readily at room temperatures and can cause spotting if the exhaust system is not watched.

### Small Color Box Is Best

A small box is used so that the minimum amount of color is exposed to the heat of the cylinder. Changes in temperature affect viscosity and printing characteristics and should be minimized by preheating the color before it is added to the color box.

The resins used are chosen for the least possible effect on hand and strength of the fabric, since surface applications have an adverse effect on drape and sewability.

The heat of the engraved cylinder is sufficient to dry the cloth for batching after printing. Curing and washing follow conventional methods.

# IT TAKES TWO

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# How to get finer yarns from coarser stocks with SYTON

Syton: Reg. U.S. Pat. Off.

Millions of submicroscopic particles of Syton increase interfiber drag, hold fibers in place, enable you to spin finer yarns.

***Here are more advantages you get with Syton:***

- Fast, easy carding—reduces harmful effects of static electricity
- Lighter, finer counts from coarser fibers
- Less twist for the same strength
- Fewer ends down
- More uniform, condensed rovings
- Higher spinning speeds
- Increased tensile strength
- High interfiber drag
- Improved color
- Improves processing of 100% synthetic fibers on woolen systems

Wait a minute! Why not get the full story? It's all in a booklet called "Profitable Spinning of Wool and Wool Blends with Syton"—technical data, illustrations, case histories. Write now to MONSANTO CHEMICAL COMPANY, Inorganic Chemicals Division, 710 North Twelfth Street, St. Louis 1, Missouri.

SYTON is an odorless, translucent, pH-stable silica sol for use alone or with other finishes. It distributes uniformly; requires no special equipment, aftertreatment or curing. It is highly resistant to dry cleaning yet removes easily from stock by mild scouring.

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SERVING INDUSTRY...
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ACETATE YARN DYEING

•

FLAT FILAMENT
THICK & THIN
REGULAR FILAMENT

COLORED YARN ON
ATLANTIC DYETUBES —
EASY TO HANDLE —
SHADES FROM A TO IZZARD —
LARGE BATCHES

JOBBERS OF NATURAL
RAYON & ACETATE YARNS

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Atlantic Rayon
CORPORATION

Dyers and Converters
of Synthetic Yarns
for All Industries

Plant at Providence 1, R. I.

NEW YORK
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Fifth Ave., New York 1

★

after printing. Curing and washing follow conventional methods.

In U. S. patent 2,667,426, granted to T. E. Davis, a second engraved cold cylinder is used to apply the color so that the problems arising from heating the inks are eliminated. Embossing and printing are kept in fit by suitable gearing. Some work has also been done with relatively cold embossing cylinders.

### Tip and Inlay Print at Once

This operation may be done at the same time as the inlay printing by the addition of suitable equipment. The color is applied just after the cloth leaves the engraved cylinder. A rubber roll, furnished with color, is adjusted to coat the raised surfaces and runs at a speed somewhat higher than that of the fabric. Drying must be accomplished without contact of the cloth with any surface.

The Dornbusch machine is especially designed for tip printing. It has an all over engraved roll and a smooth rubber roll geared together. The space between the rolls is adjustable. A reciprocating doctor blade with felt dams carries the color. The embossed fabric is passed between the rolls, and the engraved roll is adjusted to just touch the top of the embossed pattern. The set between the rolls may be adjusted to give any desired depth of color in the embossing. Drying without contact is accomplished in gas-fired flues or with infrared lamps.

The colors used are generally pigments dispersed in resins, chosen for good fastness to crocking and minimum effect on hand and strength. For the best fastness the printing should be done before the original embossing is cured.

Tip printing is done mainly on whites or plain dyed shades. Metallic effects on heavy plain dyes have produced attractive fabrics.

## Combing at Parkdale

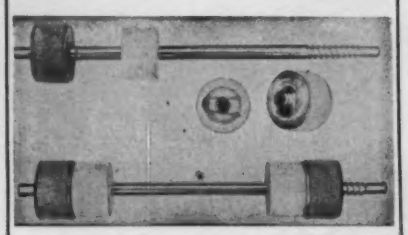
CONTINUED FROM PAGE 123

front rolls could not be set as closely as they should have been. This drawing was replaced by 144 deliveries of new Saco-Lowell three-over-four drawing and 1⅛ in. front rolls, 72 breaker and 72 finisher. The new drawing is run six ends up and drafts a little over six; the breaker-drawing sliver is 57 grains per yard and the finisher is 55 grains.

The new drawing coilers use 14x36-in. cans, which hold 40% more sliver than the old 12-in. cans did. This increase naturally means less can turning, both at the finisher-drawing and roving frames.

### Mill Is Air Conditioned

The entire mill has refrigerated air conditioning. Atmospheric conditions can be individually controlled for each process. Conditions maintained in the card room are opening and picking:



TWO BOBBIN SPINDLE

These Spindles are adjustable to the use of a long or short bobbin. Spacers of hard wood are self locking and removable.

We make these Spindles to your specifications so you can use two different length bobbins on the same spindle, on the same machine without changing the spindle.

WAYNE
MANUFACTURING CO.
HONESDALE, PA.

*Manufacturers of Textile Mill Supplies*

Textile Testing Ovens

For *accurate* testing of water content in yarn. The 8-basket oven, with 3" x 3" baskets, may be changed to 6 baskets, 4¼" x 4¼" both 6" deep. Occupies table space 20" x 40".

EMERSON Ovens

Are built in different types to handle wool, cotton and silk. Baskets are designed specially for each class of work. Write for details on EMERSON OVENS to fit your process.

EMERSON APPARATUS CO.
177 Tremont St. Melrose 76, Mass.

78°, 50%; carding: 78°, 55%; drawing, combing, and roving: 79°, 57%.

give an indication on one conduit; and since it is difficult to trace this con-

Out with
LINT-FLY and TRASH..
from your
SPINNING FRAMES
and ROVING FRAMES

DO IT QUICKLY, ECONOMICALLY
with the Amazing

M-B AMOSKEAG PNEUMATIC ROLL PICKER

MODEL A-VT-A

A pneumatic tool especially designed for the specific purpose of REMOVING LINT and FLY from the top rolls of Spinning Frames and Roving Frames. Saves time and does a better job by substituting mechanical cleaning instead of laborious hand methods. Air deflector prevents fly and lint being blown into yarn when spinning. Adjustable valve permits any desired spindle speed.

KEEP YOUR AIR LINES FREE of
WATER-DIRT and SLUDGE
•
KEEP AIR DRY AT ALL TIMES
USE THIS AMAZING COMBINATION
AND GUARD YOUR PNEUMATIC SYSTEM
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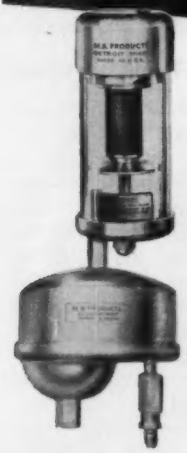

M-B AUTOMATIC WHIRL-A-WAY AIR LINE FILTER
MODEL W-1

RIBBON TYPE FILTERING UNIT removes solids .00039 and larger. Transparent plastic bowl makes filtered foreign matter visible. Gives maximum protection to all types of Lint Blowers, Blow-off Hoses and various air-operated controls.

M-B AUTOMATIC AIR TRAP

Ejects water automatically. Operates upon accumulation of 3 to 4 ounces. Discharges in less than 5 seconds. Assures dry air in pneumatic system at all times. Non-corrosive throughout. Weighs less than 5 pounds.

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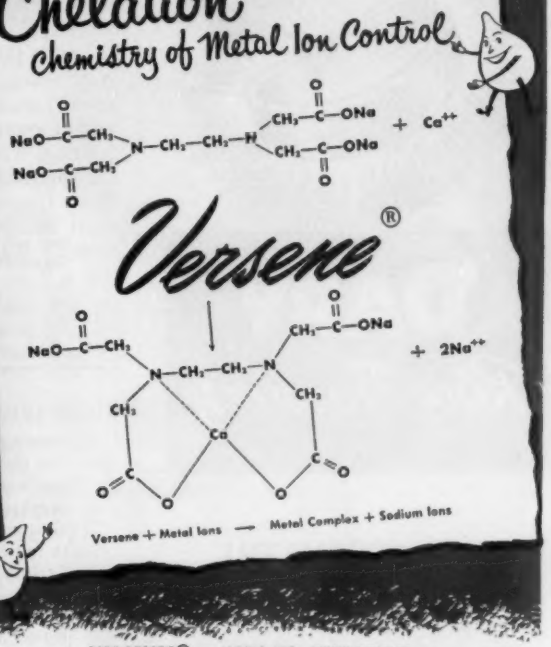
Chelation
chemistry of Metal Ion Control

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Not so long ago "Chelation" and "Versenes" were little known, unfamiliar words. Today, however, practically every chemist understands that chelation is the chemistry of metal ion control and that the Versenes are the chemicals that make it work. Over the last quarter-century Bersworth and Versenes Incorporated have pioneered and developed this new concept of trace metal control to a point where it has now become a leading chemistry of our time.

MOLE-FOR-MOLE TRACE METAL CONTROL

Probably nothing creates more complexing problems in industrial, agricultural or medical chemistry than excesses or deficiencies of metallic ions. Prior to chelation and the Versenes there was no specific way to solve them. But now, the Versenes provide exacting mole-for-mole control over trace metals throughout the pH range.

APPLICATIONS UNLIMITED

Whenever you have a problem that involves the control of metallic ions you are invited to share our accumulated research, knowledge and experience in this field. We can help you stabilize pharmaceuticals; prepare pure metal compounds; improve wet processing of products and prevent or remove stains in textiles, tanning or paper; get better control over polymerization or hard water scale; secure clear and brilliant solution formulations; obtain more efficient soaker alkali formulations; remove rust without embrittlement; develop up-to-date analytical procedures; cure chlorosis in plants, etc.; treat heavy metal poisoning; insure chemically clean surfaces for metal finishing; increase detergency of soaps and synthetics; get better "kills" with quarternary sanitizers.

Send for Technical Bulletin No. 2. Ask for samples. Chemical Counsel on request.

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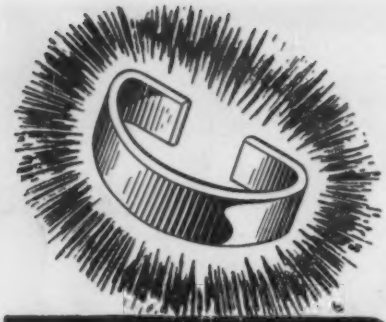

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Ring Travelers

OUR SPECIALTY!

Our specialty is making Dary ring travelers — an item well and favorably known to the textile trade for more than half a century. Though times change, we at Dary hold to one course without deviation. We continue to serve, by pursuing our specialty.

When you need ring travelers, call on our experience to aid your choice. Consult your friendly Dary representative!

*Always specify*
*DARY Ring Travelers*

THE DARY RING TRAVELER CO.
TAUNTON, MASSACHUSETTS
LINDSEY I. PHILLIPS, TREASURER, TAUNTON, MASS.
JOHN H. O'NEILL, BOX 720, ATLANTA, GA.
JAMES H. CARVER, BOX 22, RUTHERFORDTON, N. C.
CRAWFORD "JACK" RHYMER, BOX 2261, GREENVILLE, S.C.

78°, 50%; carding: 78°, 55%; drawing, combing, and roving: 79°, 57%.

Yarn size is controlled at the finisher drawing. Controlled atmospheric conditions have reduced the changes necessary 60 to 70%.

All yarns are made from 2.00-hk. roving made on Saco-Lowell 9x4¼ frames equipped with H&B five-roll drafting. The 96 spinning frames are 252-spindle Whitin 4-in.-gauge frames. These frames are equipped with Pneumafil and have Whitin Casablancas drafting. Ring size is 2¼ ins., and traverse is 9 ins. Foster Model 102 winders are used, with one operator for each 60-spindle side.

## Electrical Markings

CONTINUED FROM PAGE 95

dwelling in a town. Electrical markings give complete information in a few letters and numbers.

The mill receives its power through unit substations. Each substation feeds a section of the mill; and the substations are numbered 1, 2, 3, and so on. Each of these substations contains a number of feeder breakers that are lettered *A, B, C,* etc. The feeders go from the substation to various mill sections where tap switches are taken off for groups of machines such as spinning frames, card-drive motors, and looms.

The first tap switch taken off a feeder is numbered 1, the second tap is numbered 2, etc. This tap or group switch may feed several machines such as spinning frames. The switches on the individual spinning frames are then marked with all the numbers from the group switch ahead of them, and the frames taken off this group switch are designated as A, B, etc.

The marking on a spinning-frame switch, for instance, reading 1A-2B tells the electrician that this switch is fed by Substation 1 through Feeder-breaker and Feeder A and by Group-disconnect 2. He knows that to make Switch B electrically dead and safe to work on, he must pull the disconnect switch marked 1A-2; and from the markings on switches adjacent to the one giving the trouble, he knows he will shut down Frames 1A-2A, 1A-2B, 1A-2C, and 1A-2D.

### Markings Help With Grounds

Ground-indicator lamps are installed in each substation. When a lamp shows that a circuit is giving trouble, the signal generator of a ground-detector instrument is connected to the substation bus and the circuits leaving the back of the switchboard are tested. The feeler instrument will give an indication on one conduit; and since it is difficult to trace this conduit through pipe tunnels and other inaccessible places, the electrician goes to the first place the conduit appears in the manufacturing area.

If the ground signal persists, the electrician traces the conduit until he locates the ground. Since each conduit is marked with full designation, the circuits are therefore easy to follow and pick up where they go through the walls or tunnels.

The column markings are useful in reporting trouble with group drives or service equipment such as pumps, compressors, and similar isolated devices. A typical trouble report to the electric shop is "Water-cooler motor at Column D 46 in the spinning-room basement is stopped." This report gives the precise location of the equipment giving trouble.

If the machine giving trouble is one that carries a number—for example, looms, spinning frames, and other similar individual-driven production machines—the trouble call might be reported as "Motor stopped on Spinning Frame No. 186" or "Power is off on Looms Nos. 181 to 184 near Column D 30."

In such a case, the electrician goes to the exact power panel in the weave room located by the column number and loom number together. He can then kill the proper circuit because the power panels are marked by the loom numbers, loom rows, and circuits.

## Knitting-Machine Drives

CONTINUED FROM PAGE 115

fails to conduct properly or its filament fails to fire or heat. We are starting to date our tubes when they are installed.

### Preheat Mercury-Type Rectifiers

Two common causes of short tube life are incorrect anode fuses and failure to preheat new replacements. A mercury-type rectifier should be preheated at least 15 mins. before connecting the anode lead to evaporate the mercury from the grid and anode regions. If this time isn't available, the tubes may be preheated in advance and stored in an upright position.

Other helpful suggestions are:

1. Keep a proper amount of the correct tubes on hand.
2. Replace the correct tube in its proper socket.
3. Never substitute numbers unless you are sure what you are doing.
4. Always use correct anode fuses.
5. Replace loose tube sockets when necessary.

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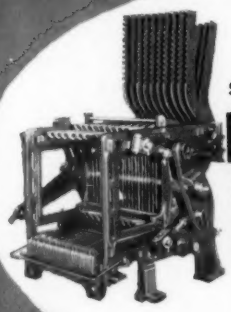
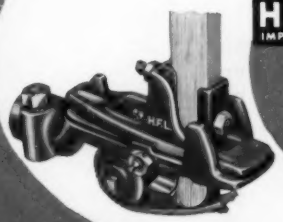


SAVE MONEY ON HFL IMPROVED PARALLEL PICKING MOTION . . .
with flat milled surfaces for true travel of picker stick.



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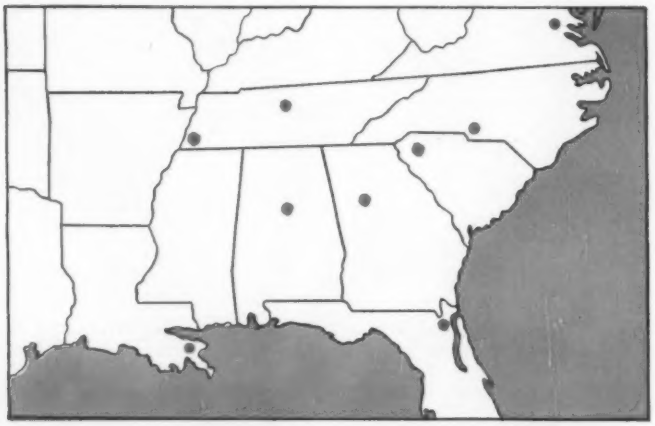

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## New Dyes and Chemicals

tion of the cationic material and acid to the dyebath.

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## New Dyes and Chemicals

CONTINUED FROM PAGE 152

### Chelating Materials

**Tetrines** . . . are a group of sequestering and chelating materials valuable for processing where iron, calcium, copper, and magnesium are present. Based on ethylenediamine tetracetic acid and sodium salts thereof, they are supplied in powder and liquid form. Useful in kier boiling, dyeing, boiling off, or peroxide bleaching where iron or other metals may affect shade or cause damage. Tetrines are stable under conditions of heat and pressure. Their powerful sequestering properties preclude their use with copper-bearing dyes. F. H. Ross & Co., Charlotte, N. C. (D-9)

### Dyes for Dacron

**Amacrons** . . . have been especially developed for dyeing Dacron. Suited to either carrier or pressure dyeing, these dyes are said to produce light, medium, and dark shades in a good range of colors. Fastness to light, washing, crocking, perspiration, dry cleaning and pressing varies from good to excellent. American Aniline Products, New York, N. Y. (D-10)

## Dyeing Acrilan

CONTINUED FROM PAGE 117

acetate white, and the acetate dyes should be of low affinity.

### Acrilan-Wool Blends

Solid shades of these blends may be produced with disperse dyes for the Acrilan and neutral acid colors or premetallized dyes on the wool. Basic dyes can be used but are not economical on medium or dark shades.

Research into the behavior of cationic substances showed that they were substantive to Acrilan and would retard dyeing with acid dyes so that wool-Acrilan blends could be produced with a good union. A method was worked out for at least 60 premetallized and level-dyeing acid dyes whereby the fabric is first wet out with a nonionic material and then the dye is added and allowed to circulate. Then cationic materials and sulfuric acid are added, and dyeing proceeds for 2 hrs.

Further research showed that if the cationic materials are not added, the dyes will exhaust onto the wool; then, if they are added after the wool is dyed, a transfer mechanism is set up whereby the dyes transfer to the Acrilan and good union shades result in blacks, browns, and navies. The shade and the dyestuffs used will determine whether or not to delay the addition of the cationic material and acid to the dyebath.

Satisfactory cationic materials include Atlas G-263 and Nopcotex A.

Cross-dyeing of Acrilan-wool blends is done with neutral-dyeing wool colors or metallized dyes with formic or acetic acid. Pretreating the Acrilan with such materials as Nylon Resist Salt GDC insures good whites. Two-tone effects are obtained by dyeing the Acrilan with disperse dyes, adding Nylon Resist Salt, and dyeing the wool with minimum amounts of acid.

## Worsted-Top Irregularities

CONTINUED FROM PAGE 87

input weight per yard tremendously during this change period.

• The last few balls or cans of any one lot can rarely be balanced into a set and must be run with an adjustment to the draft to maintain top weight. This adjustment is limited to the nearest tooth of the draft gear; so run-out tops are rarely of the proper weight.

• Short lengths of sliver are always present from wind-offs of faulty top, samples taken for weighing, etc. Only an operator's good judgment can run these back into the bulk without a wide deviation from normal load.

• If inside-to-outside sliver-weight differences from excessive winding-on tension are combined with a similar condition when balls are fed to the second finisher, we have two drastic long-term irregularities. The former alone can be present to such an extent that a short-system spinning plant has little hope of producing regular yarn, however efficient its operation is.

Positive weighting of the ball on pin drafters and gill reducers reduces the gap between the weight per unit length of opposite ends of a top. Even with the normal type of balling head, where increasing ball size invariably gives increased false draft, careful adjustment can keep this variation below 2%.

• Gill reducers with two deliveries per head always produce a heavier sliver in running only one delivery during a start-up or run-out. The slight tilt of the cot gives less grip, and therefore less draft, at the outer edge of the delivered web. This difference results in increased tension at the balling head with a wider range of outside-to-inside sliver weight.

• Finally, careless handling of the finished top during wrapping, packing, storage, and transport can produce irregularity by stretching the outer windings. Tops that emerge from a

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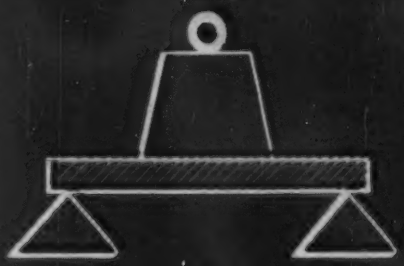
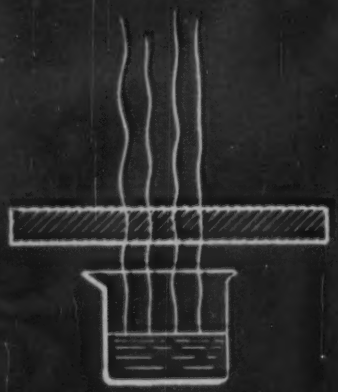
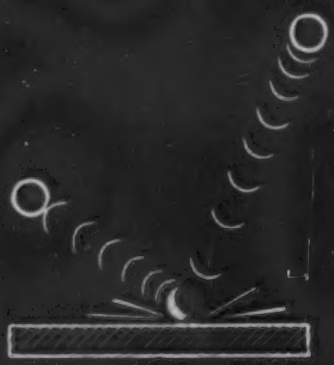
LIGHT
WEIGHT



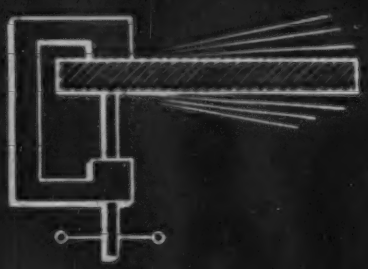
UNUSUAL
STRENGTH



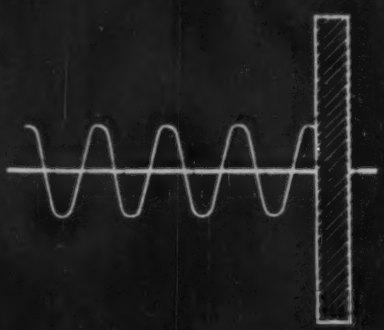
RESISTANCE TO
CORROSION



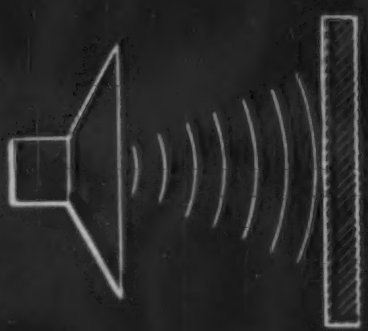
RESISTANCE TO
IMPACT



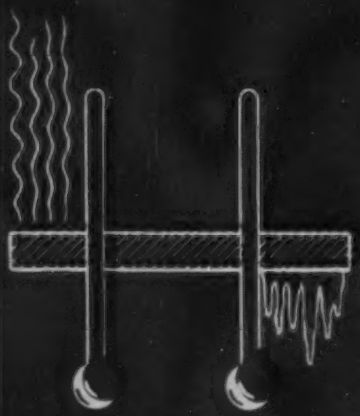
WITHSTANDS
VIBRATION



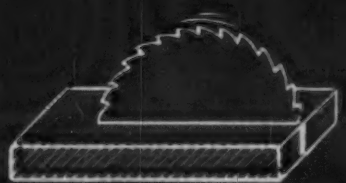
GOOD
INSULATOR



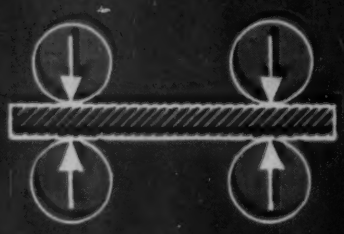
REDUCES
NOISE



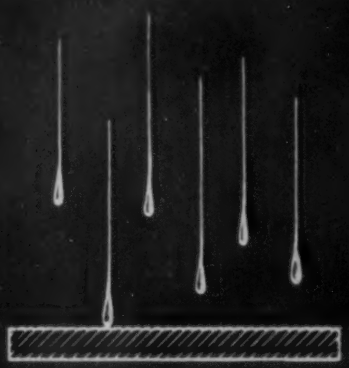
RESISTANCE TO
TEMPERATURE EXTREMES



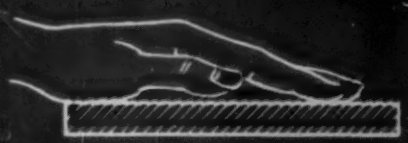
FABRICATES EASILY,
ACCURATELY



RESISTANCE TO COMPRESSION



RESISTANCE TO MOISTURE



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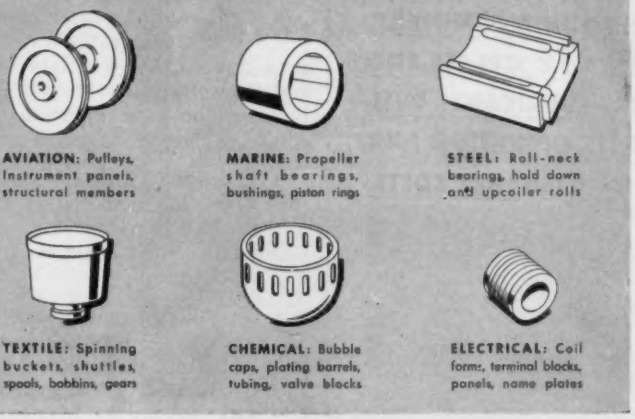

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bale square in shape, flattened to half their normal width, or flattened in the other direction to a narrow ellipse make poor raw material from which to build a uniform yarn.

### General Rules To Minimize Irregularity

Here are a few basic rules that cover ways to reduce irregularity not already covered or so obvious that they need no detailed description.

• If possible, keep each lot on one set of finisher boxes. In a large plant, this ideal is rarely achieved.

• If a lot runs on two or more combs, blend cans from each comb behind the first finisher.

• Apply conditioning as close as possible to the final top: between the front roll and the balling head of the second finisher. With gill reducers and pin drafters, no such provision is available, apparently because it is not mechanically feasible. Especially where controlled atmospheric humidity is lacking, the change in sliver weight between processes and during shutdowns can be great.

• Pulling sliver from the center of a ball at the feed of a machine is a bad practice because of the varying tensions applied, the insertion of twist, and the well-known effects of drafting twice in the same direction on successive machines.

• If possible, run-out cans from combs should be placed at the first finisher no more than one per head to minimize their effect on irregularity.

• Weighing of cans or balls should be done on a reasonably accurate scale or balance that is simple, strong, and easy to read. Loose weights, tare bars with dials in combination, or all three combined add to the risk of human error. It may seem fatuous to suggest that the operator doing this work should have a knowledge of mathematics, but the addition of "plus 10" and "minus 15" is a mysterious process to many an otherwise intelligent and capable operator.

• In mixing or regilling tops, an enormous improvement in regularity is the reward for blending ends at each operation from the various machines or heads from which they were delivered. We have four mixing operations and one finishing operation on double-head Bradford-type intersecting gill boxes, and we have improved our coefficient of variation from an average of 8% to an average of 2.5% by this simple expedient.

## Hosiery Boarding

CONTINUED FROM PAGE 88

full length of the boarding section. A bracket fixed to the ceiling at 6-ft. intervals and a 1-in. angle-iron bracket at each rafter support the duct.

### Individual Cooling Vents Are Separately Controlled

A vent is cut in the duct over the center of each of the 16 alleys. Each vent is separately controlled, and boarding operators can control the degree of cooling to suit their individual needs. Temperature of the air delivered from the ducts is 65 to 75° F. when the vents are wide open.

A fluorescent fixture with two tubes is fixed below the duct on each boarding table to supplement light from nearby windows. Two brackets screwed to the duct form a useful support to the lighting fixture.

A vent in the fan unit is closed during hot weather, but at normal times this vent is opened and the refrigeration-unit vent closed. This control allows room-temperature air to be blown over the hot boarding section.

## Better Slashing Methods

CONTINUED FROM PAGE 107

"Running tape selvages this way makes them weave at about the same tension as the warp yarns. Selvage ends are 20/2 and warp ends are 10s."

**Mill D**—"We run all our selvage ends on one section beam. The selvage yarns are laid every other dent at the warper. This section beam is placed at the front beam position at the slasher, and the selvage ends are run over the top of the size box and spread across the sheet of the warp going through the slasher. Then they are pulled over a split rod at the front of the slasher and brought together at the edges of the loom beam.

"Our selvage ends are made from two plies of the regular warp yarn. We don't size the selvage yarns because sized selvages cut the filling at the loom on some styles of cloth."

### What Cylinder Temperature?

Eight mills reported that they run the same temperatures on all slasher cylinders. Three mills vary the cylinder temperatures. For example:

**Mill A**—"On two-cylinder slashers, the big cylinder is 12° F. cooler than the small cylinder. The yarn goes over the large cylinder first; and since it is cooler, the yarn is not baked but is dried gradually.

"On four-cylinder high-speed

IS BASIC

**Open Width Bleach**— Cloth passes through an open width washer, caustic saturator, steamer, washer, peroxide saturator, steamer, washers and then over forty-nine Stainless Steel steam heated dry cans. All the equipment with the exception of the rubber rolls is Stainless Steel. Shown here are the Tensitrol Open Width Washers fabricated by Rodney Hunt Machine Co., Orange, Mass.

**Open Width Mercerizer**— Cloth is drawn from a box through two 3-roll padders, over a Mercerizing Tenter, through Stainless Steel Williams Units where all traces of caustic are neutralized and washed out and then is dried over forty-nine Stainless Steel steam drying cans. The two padders shown here each consist of three rolls and were built by the Morrison Machine Co., Paterson, N. J.

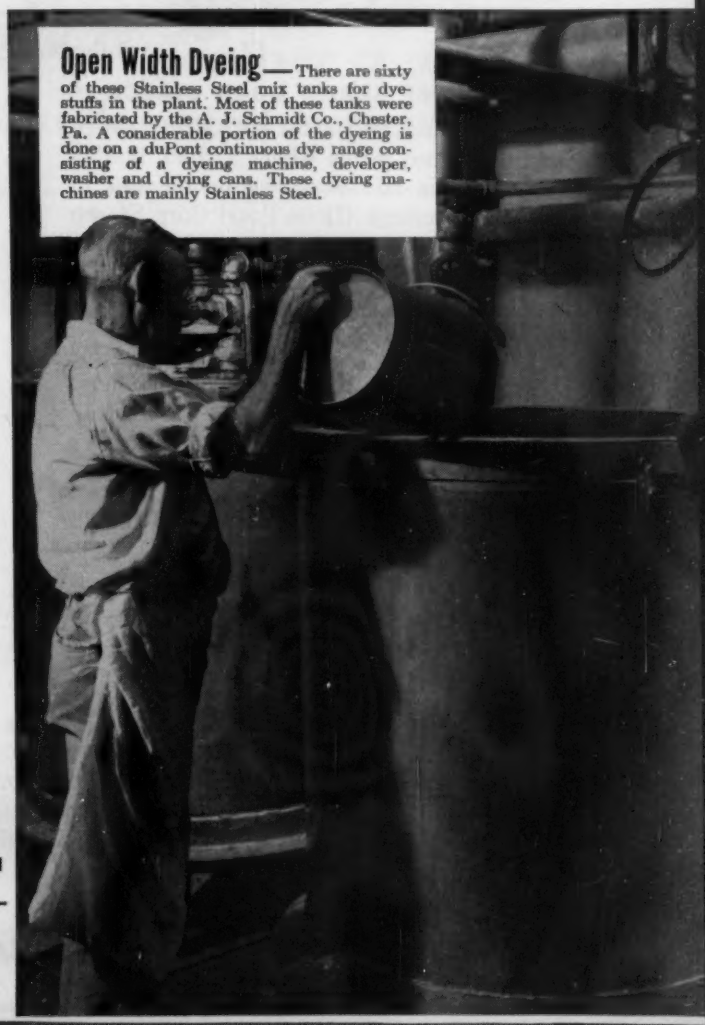
# Stainless Steel prevents contamination at every step

WHEN you are finishing cloths in continuous lengths, the smallest stain can be an expensive proposition, for it means reprocessing an entire bolt. The most effective way to guard against contamination from rust, dye carry-over or other causes is with equipment made of Stainless Steel.

The 123-year-old firm of Joseph Bancroft and Sons Co., Wilmington, Del., takes full advantage of the ability of Stainless Steel to protect against contamination by using it extensively in bleaching, mercerizing and dyeing operations.

This firm has found that Stainless Steel's light, bright surface makes detection of foreign matter easy. Its superior corrosion resistance completely does away with the problem of rust from the equipment itself. Its dense, smooth surface does not retain dye from one color to the next. And its durability, with resulting savings in maintenance and replacement, makes it the most economical material in the long run.

Follow the lead of America's foremost textile plants and use Stainless Steel wherever its many advantages dictate. And when you do, be sure it is perfected, service-tested USS Stainless Steel. Then you know you'll get the finest performance.



**Open Width Dyeing**— There are sixty of these Stainless Steel mix tanks for dyestuffs in the plant. Most of these tanks were fabricated by the A. J. Schmidt Co., Chester, Pa. A considerable portion of the dyeing is done on a duPont continuous dye range consisting of a dyeing machine, developer, washer and drying cans. These dyeing machines are mainly Stainless Steel.

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PIPE · TUBES · WIRE · SPECIAL SECTIONS

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# A COMPLETE LINE
OF
# STARCHES, GUMS & DEXTRINES

*Highly recommended for their greater cleanliness, superior uniformity, stability of viscosity, and constant availability*

**GLOBE BRAND CORN STARCH**

This starch is ideal for warp sizing carded or combed yarns where a thick boiling starch is advantageous or for use in homogenizers. Globe Pearl Corn Starch produces strong films, reducing breaks on the slasher and loom.

**EAGLE BRAND CORN STARCH**

This thin boiling starch is popular for warp sizing carded and combed yarns. Available in all fluidities, permitting viscosities required to maintain correct size concentrations for best weaving.

**HERCULES BRAND CORN STARCHES**

Oxidized starches are used in a wide variety of sizing applications. They produce a smooth but tough film.

**WARP SIZING FOR SPUN RAYON BLENDS OR SYNTHETIC FIBER SPUN YARNS**

Globe Gum and Dextrines have been popular for many years for warp sizing spun rayon. They have the superior qualities recommended for easy de-sizing.

**FINISHING SIZES**

Globe Brand extra thick starches have less setback and make a smooth paste with reduced congealing on cooling, producing superior pastes for backfilling and printing.

Globe Gum and Dextrines are used extensively in finishing various types of textile fabrics.

***Take advantage** of our free technical service. Our lab and field experts will welcome the opportunity to help you with actual production problems. Write us today.

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## For '55—For each and every new convertible top—

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**For Highest Colorfastness**
**Proved on the road**
**Under all weather conditions**
**Sunglare to hurricanes!**

"The whole Ford line is as colorful as a nestful of tropical birds!" says Life magazine. And the wonderful colors in Ford's new '55 convertible tops* are *Coloray* colors.

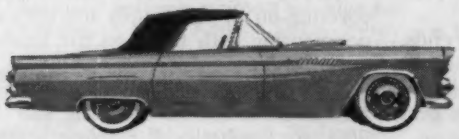
In '54, Ford used Coloray in all black tops. 100% colorfast Coloray Black proved so satisfactory that Ford now specifies Coloray for all the new convertible tops—all colors. Black, tan, even royal blue...a color usually susceptible to sun fading and weathering. But Coloray Blue, like all Coloray colors, is *superfast*...to sun, storms, washing, cleaning, practically everything

Coloray's superfastness is the result of the original solution-dyeing method created by Courtaulds. Color is caged inside the fiber—can't escape. And it is richer color, more economical color. Makes possible better products—for more people for less money.

There's the secret of volume—in automobiles, men's, women's and children's apparel, home furnishings, industrial goods. No wonder Ford goes all the way with Coloray! How about you?

*Outside fabric. Ford and Thunderbird topping by Acme Backing Corp.

**Thunderbirds, too!**



*All fabric tops in Ford's luxury sports models are 100% colorfast Coloray Black.*

*For further information, write Fabric Development Dep't;*

**COURTAULDS** *first name in man-made fibers, first name in solution-dyeing*

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PA.

slashers, the cylinder temperature is all the same because the slasher speed is controlled by instruments. This arrangement is satisfactory because heavy sets are run on the high-speed slashers and light sets are run on the two-cylinder ones."

**Mill B**—"We use these temperatures on our slasher cylinders: No. 1, 217° F.; No. 2, 222° F.; Nos. 3 and 4, 230° F. These temperatures prevent yarn sticking to the cylinders."

**Mill C**—"Beginning at the back cylinder, the temperature is increased 10° F. on each succeeding cylinder. This arrangement reduces yarn sticking to a minimum."

### Warp Stretch Is Measured

Two mills are using warp-stretch indicators to aid in controlling warp stretch. In both cases, the indicators are being used experimentally.

Methods used by various mills to help control warp stretch are:

**Mill A**—"We use ball-bearings on section beams."

**Mill B**—"Beams in the creel are kept level and in line. We also use leather washers around the beam journals and keep the bearings loose enough to permit the washers to turn."

**Mill C**—"Our yarn stretch is controlled by increasing or decreasing the size of the delivery roll. We also check the amount of weight on section-beam friction ropes closely.

"We check the stretch by attaching a yardage counter between the section beams and the size box and attach another counter on the loom beam at the front of the slasher. We try to hold the stretch between 1½ and 2%."

**Mill D**—"We do not control the stretch in the creel. We use a variable-speed drive between the size box and the delivery roll on four slashers. On two slashers, we have multimotor drives."

All mills trying to control stretch were trying to hold the stretch between the range of 1½ to 2½%.

### How Lease Strings Are Used

The frequency of placing lease strings in warps varies from once every warp to only once per set. Most mills, however, use lease strings from every one to three warps and also every time ends break or other trouble occurs. In some mills, the number of ends in the set determines the frequency of placing lease strings. For instance:

**Mill A**—"On sets up to 1,600 ends, we use lease strings every three beams. Sets of 1,600 to 2,500 ends are leased every two beams, and sets with over 2,500 ends are leased once per beam."

**Mill B**—"Lease strings are run twice each loom beam on synthetic-fiber yarns and once per beam on medium-weight cotton warps. On lightweight cotton warps, the strings are used every two beams.

"Warps leased this way are straight and have few struck ends."

Fourteen mills gave detailed methods for controlling yarn waste at slashers. The most effective system explained results in only 7 yds. of hard waste and 8 to 10 yds. of soft waste per set. This method is:

"We keep a daily record of the waste made by each slasher tender. Each tender is allowed 1% waste, and if his waste runs above 1%, the second hand makes a check to determine the cause.

"Slasher sets average from 1,500 to 1,800 ends. The total average waste of 17 to 18 yds. per set is lost when the slasher is creeled."

Other mills reported waste considerably in excess of this figure.

---

## Large-Package Spinning

CONTINUED FROM PAGE 101

down per 1,000 sp. hrs. are 35 to 40.

One spinner looks after eight sides. Day-shift spinners clean rolls on three sides each shift, and the night-shift spinners clean the remaining two sides. This roll cleaning is done with a brush. The roll picker is used once each week.

The frames are fitted with revolving top cleaners, Pneumafil, and long-draft spinning system. The spindles are lubricated weekly. Knee brakes have been added to stop the package quickly to prevent spinners from burning their hands.

### Cleaners Cover Three Frames

A Parks-Cramer ceiling cleaner is attached in tandem to a Parks-Cramer frame cleaner. This unit moves back and forth over three frames.

Two Amco units control humidity conditions over the 10 frames between 50 and 55% r.h. The temperature is regulated at 80° F.

---

## New Slashing Equipment

CONTINUED FROM PAGE 106

back rolls. Mill reports on back and front rolls are:

**Mill A**—"We run the synthetic-type covering on the back rolls and are experimenting with them on the finishing rolls.

"We use dead-weight pressure, and the pressure on the finishing roll is 700 psi.; the back roll pressure is 600 psi.

"The back rolls are buffed every six months, and the estimated life is five

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**NEW SUPREME, SINKER TOP MODEL SAAF-O PRODUCES AUTOMATIC VARIABLE STRIPE, SOLID OR PATTERNED JERSEY WITH KNIT-ON, SIMULATED RIB TRIM & DRAW THREAD SECTION SEPARATORS.**

- Produces complete sections with 1 x 1 elasticized rib effect trim wherever desired and perfectly uniform selvedge for Sweater, T-Shirt, Knitted Dress, Swimwear, etc.
- Knits 38 yds. per hr. at 20 stitches per inch. Operates with extremely high knitting efficiency and low maintenance cost as featured on all Supreme knitting equipment. "Picks Up" immediately with no needle or sinker breakage.
- Draw thread provides quick, easy section separation—leaves uniform selvedge.
- Knits virtually all types of yarn including cotton, wool, Orlon. New high bulk Orlon especially applicable.
- Has all features of the SAAF-C—each feed contains 3-position pattern wheel, with new finger-tip adjustment 4-color striping box and pattern placer.
- Available in 8" to 30" diameters—WITH CYLINDERS UP TO 20 NEEDLES PER INCH.
- Standard 26" diameter machine contains up to 32 feeds with accessible 64 to 128 cone, tiered, stationary yarn stand.

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years. The cost is slightly less than that of yarn-wound rolls.

"We can't tell any difference in the weaving quality with the synthetic-covered rolls compared with the quality from yarn-wound rolls. The size pickup, however, is slightly greater with the rubber-type rolls."

**Mill B**—"We use rubber-covered rolls at both the front and back on 13, 20, 21, and 26s yarns and buff them every six months.

"We think the yarn slashed on rubber-covered rolls weaves better than that from yarn-wound rolls. Our rolls have not been used long enough to make any cost comparisons.

"The size pickup is the same on both types of rolls. But there is less hard size at slasher stops with the rubber-type rolls."

### Rolls Are Run Five Years

**Mill C**—"We are using rubber-covered back rolls. The weight of the roll is 290 lbs., and we don't use pneumatic loading. Since we have used the rolls only four months, we don't have any idea of the buffing schedule or expected life.

"There is no effect on weaving quality and no effect on size pickup on light sets."

**Mill D**—"Rubber-covered rolls are satisfactory on the back rolls, but we have not found a rubber-covered roll that is satisfactory on finishing rolls."

**Mill E**—"We are pleased with the synthetic type of rubber covering on both finishing and back squeeze rolls. We use them with both regular and pneumatic loading. We add 200 lbs. of additional weight to our regular 500-lb. rolls for best results.

"We have used some of the rolls for five years and have never had to rebuff a roll.

"We get a little more size pickup on the rubber rolls than with wool blankets. We also get more-uniformly sized warps with the rubber rolls because there is a lot of difference in the way warps are sized when blankets become aged."

Synthetic-rubber-covered delivery rolls are used in five mills. Men from one mill say:

"Covering delivery rolls with synthetic rubber is one of the best improvements made in slashing in recent years. We like the covering better than cloth covering because it's not possible to get uniform tension all the way across the warp with cloth covers.

"We cover the delivery rolls with cork fillet, and when the cork becomes damaged, we replace the damaged strip. The rolls generally run about six months before they need re-covering all over."

## Antistatic Agents

CONTINUED FROM PAGE 119

the formulation of an antistatic agent can be quite simply attained.

However, when the agent is applied to a fiber, yarn, or fabric, in many cases the expected antistatic effect does not occur. In some cases, it lasts only for a few days, weeks, or months. This storage effect is fairly well known and is especially troublesome with nylon, acetate, and certain staple fibers.

It is generally recognized that loss of antistatic effect is due to diffusion of the agent into the fiber. The fact that the agents are often quite satisfactory on fibers that are difficult to dye—such as glass, Orlon, and Dacron—suggests that in these cases oxidation or volatization is not involved. In other cases, there seems to be a limit to the amount of agent that goes into the fiber so that an adequate application will store indefinitely. This storage factor is especially important, therefore, in trying to determine the minimum amount of agent to use.

A series of tests were made to evaluate loss of antistatic properties by a number of agents on a variety of fibers. In general, among the oxyethylation products, we have found that increasing complexity in the alkyl portion gives better storage properties in the following categories:

| | |
|---|---|
| Tallow acid oxyethylation products | Poor storage |
| Polyethylene glycols | Poor storage |
| Nonylphenol oxyethylation products | Medium storage |
| Diamylphenol oxyethylation products | Medium storage |
| Oxyethylation products of specific experimental alkylated phenols | Good to excellent storage |

However, excessively low hygroscopicity or excessive viscosity will make agents poor as antistatic agents.

## STA—Weaving

CONTINUED FROM PAGE 110

15. Use selvage protectors on cloth rolls.

16. Blow off the stop motion while the warp is on the loom.

17. Put front aprons on X-model looms.

18. Talk to everyone about oil.

19. Have cloth doffers put a rag on the floor when the rod is removed from a roll of cloth.

20. Try vacuum cleaning.

21. Use cloth tubes of the proper length, and don't let the cloth doffer throw them around.

22. Doff onto a truck.

23. Doff onto a metal pan and slide the pan out to the main truck.

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# SUPER TUFTER

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## *Latest in Design*
## *Rugged in Construction*
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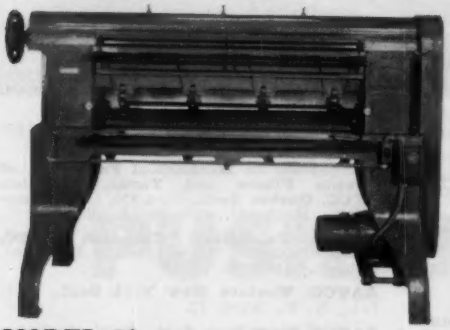
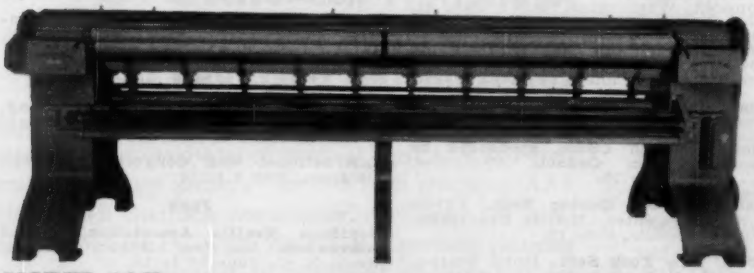
**MODEL 120**
This model sewing a maximum width of 120" is chiefly used for bedspreads and will also produce carpeting that will finish a full 9 foot width.

**The only company in the world devoting our entire time to designing and manufacturing tufting machinery.**
**All of the Super Tufters are equipped with Automatic yarn feeds and magnetic brake motors, and can be furnished in either Cut Pile, Short Loop or Long Loop. For further information WRITE, WIRE OR PHONE SUPER TUFTER MACHINERY COMPANY, INC. Fort Oglethorpe, Georgia. PHONES 81-8311 & 81-8312.**



**MODEL 56**
This unit————sewing a maximum width of 61" is most commonly used for small throw rugs and stair runners.

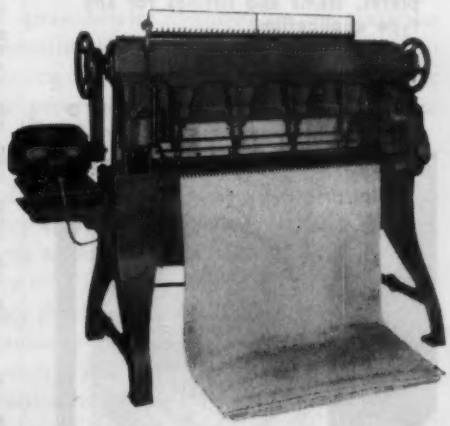
**MODEL 208**
The largest unit of our complete line, capable of sewing a maximum width of 208", is the first model to be equipped with dual drive directly connected with main shaft and yarn feed. This model is capable of producing room size carpeting that will finish a full 15 foot width.



**MODEL 14-F**
Pictured above, sewing a width of 168" is capable of producing carpeting that will finish a full 12 foot width.

**MODEL 40 (Not Shown)**
Sewing a width of 40". Is used chiefly as a pilot model for testing various yarns and backing material as well as for small throw rugs and bath mats.

**MODEL 76 (Not Shown)**
Sewing a width of 76". Has same frame construction as Model 56 and is used for crib spreads and throw rugs.



**MODEL 47**
This yardage machine sewing a maximum width of 47" used for wearing apparel and stair runners.

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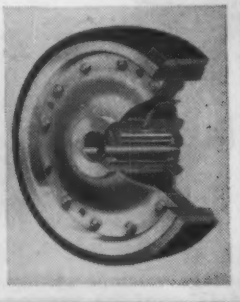

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# TEXTILE CALENDAR

### January

**Symposium on Fiber Interactions,** Polymer Research Institute, Brooklyn Polytechnic Institute, Brooklyn, Jan. 8.

**AATCC, Hudson-Mohawk Sect.,** Jack's Restaurant, Albany, N. Y., Jan. 14.

**AATCC, Western New York Sect.,** Buffalo, N. Y., Jan. 14.

**Symposium on Mechanical Properties of Textile Fibers and Yarns, Canadian ATCC, Quebec Sect.,** Ciba Co. Conference Room, Montreal, Canada, Jan. 14.

**Canadian ATCC, Quebec Sect.,** Physical Science Center, McGill University, Montreal, Canada, Jan. 15.

**Plant Maintenance and Engineering Show,** International Amphitheater, Chicago, Ill., Jan. 24 to 27.

**International Heating and Ventilating Exposition,** Convention Hall, Philadelphia, Pa., Jan. 24 to 28.

**National Industrial Relations Conference,** sponsored by U. S. Chamber of Commerce, Biltmore Hotel, Dayton, Ohio, Jan. 27.

**American Society for Quality Control, Textile Div., annual meeting,** Clemson College School of Textiles, Clemson, S. C., Jan. 27 to 29.

**AATCC, New York Sect.,** Hotel Statler, New York, N. Y., Jan. 28.

**Pennsylvania Textile Executives Assn., annual banquet,** Beck's Restaurant, Philadelphia, Pa., Jan. 29.

**American Society for Testing Materials, Committee Week,** Netherland Plaza Hotel, Cincinnati, Ohio, Jan. 31 to Feb. 4.

### February

**Philadelphia Textile Institute Alumni Banquet,** Warwick Hotel, Philadelphia, Pa., Feb. 4.

**Symposium on Blend Engineering,** Polymer Research Institute, Brooklyn Polytechnic Institute, Brooklyn, N. Y., Feb. 5.

**AATCC, Washington Sect.,** place to be announced, Washington, D. C., Feb. 11.

**Symposium on Mechanical Properties of Textile Fibers and Yarns, Canadian ATCC, Quebec Sect.,** Ciba Co. Conference Room, Montreal, Canada, Feb. 11.

**Industrial Recreation Conference,** Purdue University, Lafayette, Ind., Feb. 12 to 14.

**Cotton Research Clinic, sponsored by National Cotton Council,** Pinehurst, N. C., Feb. 16 to 18.

**Canadian ATCC, Quebec Sect.,** Physical Science Center, McGill University, Montreal, Canada, Feb. 19.

**AATCC, New York Sect.,** Hotel Statler, New York, N. Y., Feb. 25.

**AATCC, Hudson-Mohawk Sect.,** Jack's Restaurant, Albany, N. Y., Feb. 25.

### March

**AATCC, Western New York Sect.,** Hamilton, Ont., Canada, March 4.

**Symposium on Fiber-Yarn-Fabric Relationships,** Polymer Research Institute, Brooklyn Polytechnic Institute, Brooklyn, N. Y., March 5.

**National Assn. of Corrosion Engineers,** Hotel Palmer, Chicago, Ill., March 7 to 11.

**Textile Research Institute, annual meeting,** Hotel Commodore, New York City, N. Y., March 10 and 11.

**Southern Textile Methods and Standards Assn.,** Clemson House, Clemson, S. C., March 17 and 18.

**AATCC, New York Sect.,** Kohler's Swiss Chalet, Rochelle Park, N. J., March 18.

**Symposium on Mechanical Properties of Textile Fibers and Yarns, Canadian ATCC, Quebec Sect.,** Ciba Co. Conference Room, Montreal, Canada, March 18.

**Canadian ATCC, Quebec Sect.,** Physical Science Center, McGill University, Montreal, Canada, March 19.

**American Cotton Manufacturers Institute, annual meeting,** Biltmore Hotel, Palm Beach, Fla., March 31 to April 2.

**Southern Municipal and Industrial Waste Conference,** College of Engineering, Duke University, Durham, N. C., March 31 and April 1.

### April

**Symposium on Textile Research,** Polymer Research Institute, Brooklyn Polytechnic Institute, Brooklyn, N. Y., April 2.

**AATCC, New York Sect.,** Kohler's Swiss Chalet, Rochelle Park, N. J., April 2.

**Phi Psi Textile Fraternity, annual convention,** Lowell Tech, Lowell, Mass., April 7 to 9.

**Alabama Cotton Manufacturers Assn., 50th anniversary meeting,** Biloxi, Miss., April 13 to 15.

**American Society of Lubrication Engineers, annual meeting,** Hotel Sherman, Chicago, Ill., April 13 to 15.

**AATCC, Hudson-Mohawk Sect.,** Jack's Restaurant, Albany, N. Y., April 15.

**Symposium on Mechanical Properties of Textile Fibers and Yarns, Canadian ATCC, Quebec Sect.,** Ciba Co. Conference Room, Montreal, Canada, April 15.

**Textile Exhibition, Canadian ATCC,** Sheraton-Mount Royal Hotel, Montreal, Canada, April 21 to 23.

**AATCC, Western New York Sect.,** Buffalo, N. Y., April 22.

**AATCC, New York Sect.,** Kohler's Swiss Chalet, Rochelle Park, N. J., April 22.

**Knitting Arts Exhibition,** Convention Hall, Atlantic City, N. J., April 25 to 29.

**Cotton Manufacturers Assn. of Ga., 55th anniversary convention,** Boca Raton Hotel, Boca Raton, Fla., April 27 to 29.

**Delta Kappa Phi Textile Fraternity, annual convention,** Lowell Tech, Lowell, Mass., April 29 and 30.

### May

**The Fiber Society, spring meeting,** School of Textiles, Alabama Polytechnic Institute, Auburn, Ala., May 4 and 5.

**International Silk Congress,** Brussels, Belgium, May 9 to 14.

### June

**Southern Textile Association, annual convention,** Mayview Manor, Blowing Rock, N. C., June 16 to 18.

**Materials Handling Exposition,** International Amphitheater, Chicago, Ill., June 16 to 20.

**International Textile Exhibition,** Brussels, Belgium, June 25 to July 10.

**American Society for Testing Materials, annual meeting,** Chalfonte-Haddon Hall, Atlantic City, N. J., June 26 to July 1.

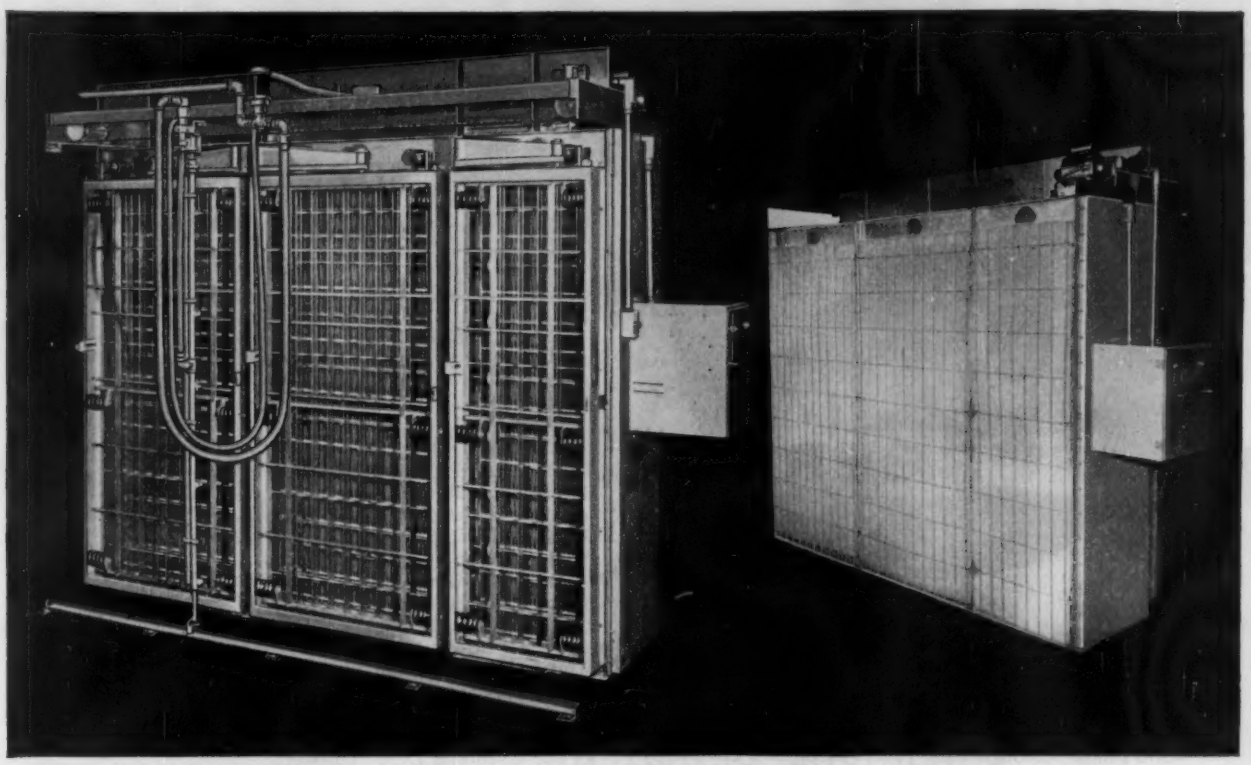
### September

**The Fiber Society, fall meeting,** Mass. Institute of Technology, Cambridge, Mass., Sept. 8 and 9.

**AATCC, national convention,** Chalfonte-Haddon Hall, Atlantic City, N. J., Sept. 21 to 23.

**Northern Textile Assn. and National Assn. of Cotton Manufacturers, annual convention,** Wentworth-By-The-Sea, Portsmouth, N. H., Sept. 29 and 30.

**Machine Tool Show,** International Amphitheater, Chicago, Ill., Sept. 6 to 17.



New Type "H" Washer incorporated as an integral part of the Electro-Cell precipitator. Spray nozzles for both the washing and collector plate coating operations travel on an overhead trackway. RIGHT: Rear view of Electro-Cell showing water eliminators consisting of Amer-glas pads which catch any surplus spray escaping plates during washing operation.

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Super-clean air around the clock for all your production needs without maintenance worries! Dust, soot and even smoke are "easy pickin's" for the high efficiency AAF Electro-Cell electronic precipitator. Now, with the addition of the new Type "H" Washer, that periodic cleaning operation (so essential to continued efficiency) is reduced to a mere push of a button.

Easy? Let's push the button and see what happens. First, the spray header moves back and forth across the face of the plate cells, washing away the accumulated dust and dirt. After a five-minute drying period, an adhesive coating is then applied to the clean collector plates through another set of spray nozzles mounted on the traveling header. Each operation is automatically timed. There's no opening and closing of valves or clock watching on your part. That one press of the button did the complete cleaning job.

It's a thorough job, too, because the spray heads are automatically adjusted to always point at a 5-degree angle in the direction they are traveling. Each side of each individual plate receives a thorough washing and even application of adhesive over its entire depth.

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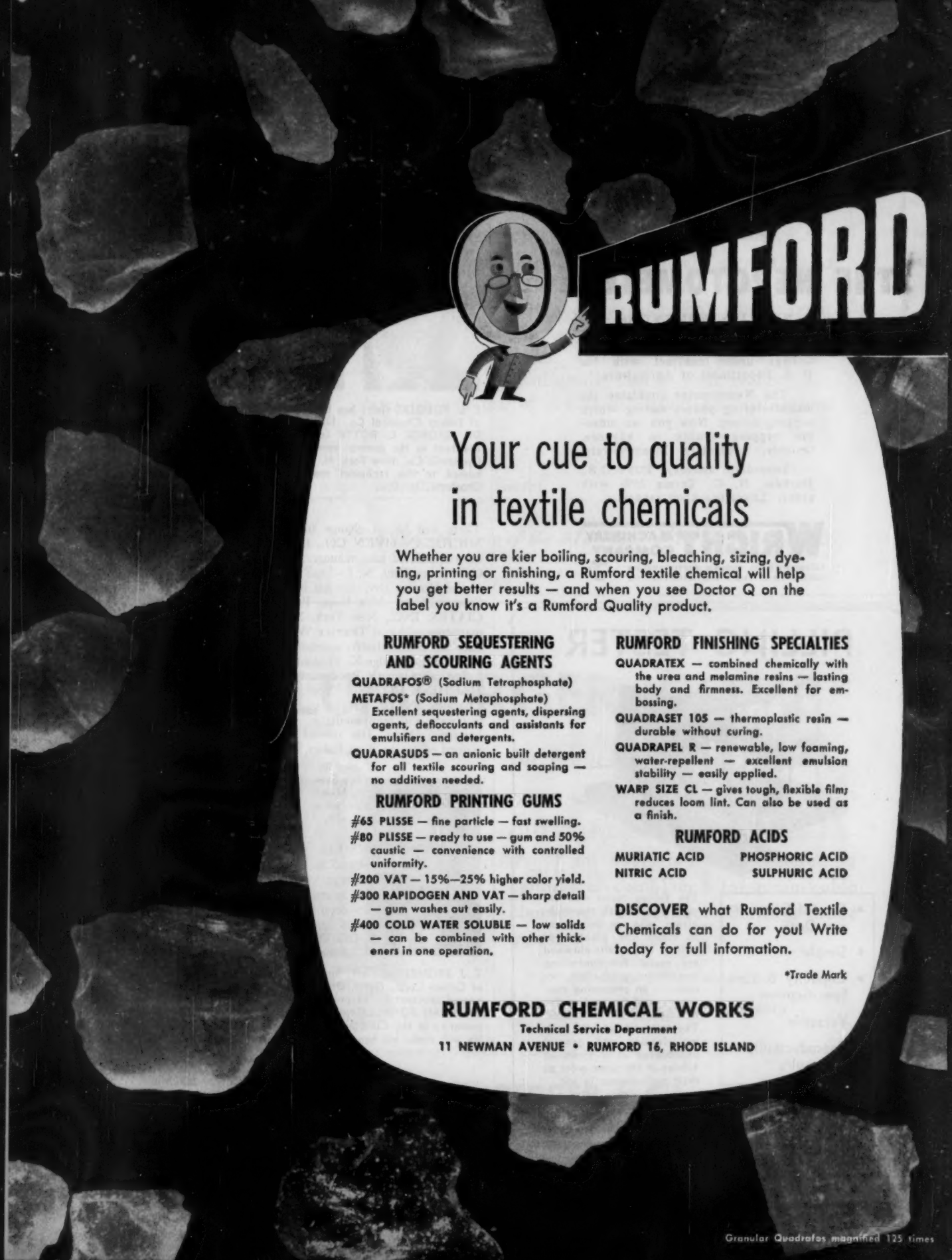
**ACME STEEL CO.**, Chicago, Ill.—Walter F. Hinkle elected vice president in charge of engineering. . . . **ALLIED CHEMICAL & DYE CORP.**, National Aniline Div., New York, N. Y.—Daniel M. Holsenbeck, Jr., appointed fiber sales and service representative. He will be located in Greensboro, N. C. . . . **ALLIS-CHALMERS MFG. CO.**, Milwaukee, Wis.—G. V. Woody named special assistant to the vice president and director of sales, general machinery division. William M. Wallace named manager of the processing department. . . . **AMERICAN VISCOSE CORP.**, Philadelphia, Pa.—Richard H. Braunlich named head of the newly created Viscose Textile Filament Section. . . . **ARMSTRONG CORK CO.**, Lancaster, Pa.—J. G. Ostertag named manager of the Chicago, Ill., office of the Industrial Div. . . . **ARNOLD, HOFFMAN & CO., INC.**, Providence, R. I.—Opened a new office and warehouse in Atlanta, Ga. Dwight L. Turner named head of this branch. . . . **ATLAS POWDER CO.**, Wilmington, Del.—Edward J. Goett named a director and vice president in charge of the Chemicals, Darco, and Commercial Development Depts. W. Clayton Lytle named general manager of the Chemicals Dept. Dr. Robert S. Rose, Jr., named acting director of the research department. . . . **H. W. BUTTER-**

**JOHN J. KAUFMANN, JR., (left) has been appointed executive vice president of Steel Heddle Mfg. Co., Philadelphia, Pa. CARL W. PETERSEN (center) has been named vice president and works manager of Dodge Mfg. Corp., Mishawaka, Ind. ROY M. SPILMAN (right) has been appointed sales manager for the Industrial Div. of Durkee-Atwood Co., Minneapolis, Minn.**

**WORTH & SONS CO.**, Bethayres, Pa.—Has just completed a new plant addition and installed new machine tools to handle its new contract manufacturing service for machine builders. Facilities will be available to machinery manufacturers who want to retain their own sales organization. . . . **DOW CHEMICAL CO.**, Midland, Mich.—Has purchased Versenes, Inc., Framingham, Mass. . . . **E. I. DU PONT DE NEMOURS & CO., INC.**, Wilmington, Del.—Robert L. Richards named a director, vice president, and member of the executive committee; in the Textile Fibers Dept. Andrew E. Buchanan, Jr., has been named general manager, David H. Dawson, assistant general manager, and William T. Wood, general director. . . . **FOOD MACHINERY & CHEMICAL CORP.**, San Jose, Calif.—Has merged its subsidiary, Buffalo Electro-Chemical Co., Inc., and will operate it under the name of Becco Chemical Div. . . . **ROBERT GAIR CO., INC.**, New York, N. Y.—Will establish a new corrugated box plant at Atlanta, Ga. . . . **GAYLORD CONTAINER CORP.**, St. Louis, Mo.—Is constructing a box-converting plant in San Antonio, Tex., as part of an expansion for the San Antonio manufacturing facilities. The company has also started construction of a new box-manufacturing plant in Miami, Fla. . . . **GENERAL ELECTRIC CO.**, Plainville, Conn.—Hicks B. Waldron named materials specialist for the Distribution Assem-

## NEWS ABOUT SUPPLIERS *(Continued)*

blies Dept. . . . **HINDE & DAUCH PAPER CO.**, Sandusky, Ohio—Will build a corrugated-box factory in Gastonia, N. C. . . . **JAMES HUNTER MACHINE CO.** and **HUNTER CON-**

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**QUADRAFOS®** (Sodium Tetraphosphate)

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**QUADRASUDS** — an anionic built detergent for all textile scouring and soaping — no additives needed.

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**#300 RAPIDOGEN AND VAT** — sharp detail — gum washes out easily.

**#400 COLD WATER SOLUBLE** — low solids — can be combined with other thickeners in one operation.

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**QUADRAPEL R** — renewable, low foaming, water-repellent — excellent emulsion stability — easily applied.

**WARP SIZE CL** — gives tough, flexible film; reduces loom lint. Can also be used as a finish.

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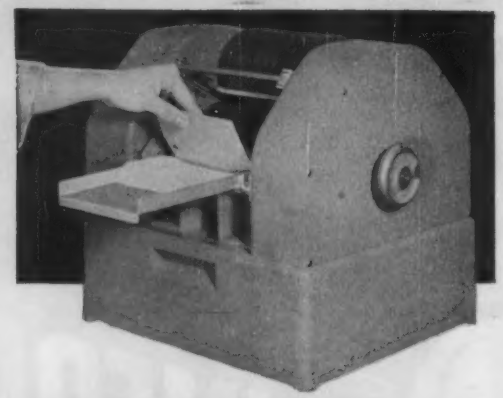

# THE NEPOTOMETER

A NEW INSTRUMENT for predicting the potential of cotton fibers. Developed by North Carolina State College under contract with the U. S. Department of Agriculture.

The Nepotometer simulates the manufacturing phases during which nepping occurs. Now you can measure nepping quality in advance. Quickly. Accurately. Inexpensively.

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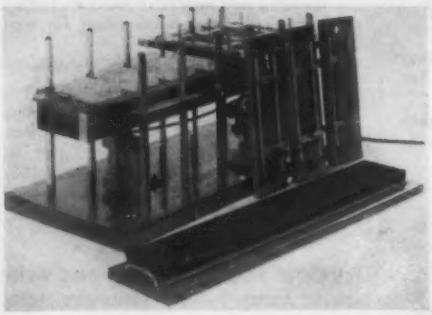
# PILLING TESTER



- Ease of Comparison Data
- Simple
- Capacity 6 Test Specification
- Versatile
- Reproducibility of Results

The Pilling tester was designed to furnish the technician with an instrument to check the problem of pilling. The results obtained are useful for controlling commercial production, for research on processing conditions, and for guiding the development of new fabrics. The test will rate the pilling, fuzzing and general appearance of a series of fabrics in the same order as their performance in use.

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541-543 Devon Street Arlington, New Jersey
MANUFACTURERS OF CUSTOM-BUILT LABORATORY EQUIPMENT

## NEWS ABOUT SUPPLIERS *(Continued)*

blies Dept. . . . **HINDE & DAUCH PAPER CO.**, Sandusky, Ohio—Will build a corrugated-box factory in Gastonia, N. C. . . . **JAMES HUNTER MACHINE CO.** and **HUNTER CONTROLS, INC.**, North Adams, Mass.—Have named L. V. Neese and Carl Endlein, respectively, to represent them in the South. . . . **MACBETH CORP.**, Newburgh, N. Y.—Robert E. Meeker promoted to sales manager. . . . **MINNEAPOLIS-HONEYWELL REGULATOR CO.**, Philadelphia, Pa.—Has purchased all the outstanding capital stock of Doelcam Corp., Boston, Mass.

**E. L. RODGERS (left) has been named to handle the technical sales of Emkay Chemical Co., Elizabeth, N. J., in Georgia and Alabama. DR. GEORGE L. ROYER (center) has been named administrative assistant to the general manager of the Research Div. of American Cyanamid Co., New York, N. Y. GEORGE SPEER, Jr., (right) has been named to the technical staff of Arnold, Hoffman & Co., Inc., Charlotte, N. C.**

There will be no change in the Doelcam management. . . . **MICHIGAN OVEN CO.**, Detroit, Mich.—LeRoy M. Gill has been appointed sales manager. . . . **ONYX OIL & CHEMICAL CO.**, Jersey City, N. J.—Emil W. Peters has resigned as director of the Hosiery Div. He has been elected president of Advanced Products Corp., New Hope, Pa. . . . **BRUCE PAYNE & ASSOCIATES, INC.**, New York, N. Y.—James H. Kennedy, former managing editor of TEXTILE WORLD, has been named senior associate and administrative assistant. . . . **RHODIA, INC.**, New York, N. Y.—Breckinridge K. Tremaine named technical director of the Industrial Alamask Reodorant Div. . . . **SINGER SEWING MACHINE CO.**, New York, N. Y.—Opened a new agency in Charlotte, N. C., for the sales and service of industrial sewing machines and equipment. . . . **SJOSTROM MACHINE CO.**, Lawrence, Mass.—Has moved its entire plant, equipment, and general offices to Boca Raton, Fla. Company has sold the Knot-

**T. J. BROMELING (left) has been named manager of industrial sales at Colson Corp., Elyria, Ohio. JOHN J. GREAGAN (center) has been named assistant to the president of Pneumafil Corp., Charlotte, N. C. DR. JAIME FONRODONA (right) has been named home office representative in the Caribbean area for Kuljian Corp., Philadelphia, Pa. He will make his headquarters in Caracas, Venezuela**

wood patented apron business to Whitin Machine Works, Whitinsville, Mass., but will continue the manufacture of cloth-conditioning machines, variable-speed drives, and folding machines at the new plant. . . . **STANDARD MILL SUPPLY CO.**, Pawtucket, R. I.—Harold B. Cameron named sales engineer. . . . **CHAS. S. TANNER CO.**, Providence, R. I.—Named direct representatives in the South for the sales of the Versenes manufac-



UTICA Combination Winding and Cutting Machine

NEWS ABOUT SUPPLIERS *(Continued)*

tured by Versenes, Inc., Framingham, Mass. . . . **UNIVERSAL WINDING CO.**, Providence, R. I.—Will manufacture the

*Get off the credit hook*

When you're factored by Crompton, you have no receivables (we turn them into cash on a daily basis). Your bank balances become larger and enable you to liquidate your payables that much sooner. Unless you're unusually extended in production and raw goods, you have no need for banking loans.

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# UTICA Combination Winding and Cutting Machine

To meet your special requirements, ask for information on Heavy Duty Model — also Utica Individual Roll Winders and Strip Cutters.

**1 machine does the work of 2**

THIS fast-producer has all the advantages of two machines, but uses the floor space of just one. Cuts light, medium, or heavy weight, both straight and bias fabrics. Cutter and Winder can be run at the same time. Rigidly constructed for long, trouble-free operation. Has measuring scale for cutting accurate rolls. It's safe—knife, grinding wheel, all gears and sprockets are well-guarded. Equipped with Veeder Root yardage counter. Made in 40, 45, and 55 inch width machines. Make your own bindings—as you need them—from the same material as your product—at lower cost. Write today.

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tured by Versenes, Inc., Framingham, Mass. . . . **UNIVERSAL WINDING CO.**, Providence, R. I.—Will manufacture the apparatus needed for the manufacture of Agilon stretch yarn developed by Deering, Milliken Research Trust, Pendleton, S. C. . . . **WHITIN MACHINE WORKS**, Whitinsville, Mass.—Has purchased the Sjostrom Knotwood Apron Co., Inc., Lawrence, Mass. . . . **WORTHINGTON CORP.**, Harrison, N. J.—Has opened an educational exhibit of basic industrial machinery at 99 Park Ave.

## COTTON MILLS

**Amazon Cotton Mills,** Thomasville, N. C., has started a $750,000 modernization program. New equipment and humidification will be installed.

**Canadian Spool Cotton Co. Ltd.,** Montreal, Que., has awarded the contract at $125,000 for a new plant on Notre Dame St., Montreal, to Concrete Construction Ltd., Montreal.

**Colonial Products Co.,** Geneva, Ala., has started construction of a new building to be used for the expansion of its chenille plant. The all-steel building will measure 60x80 ft.

**Deering, Milliken & Co.,** Greenville, S. C., has purchased 396 Schlafhorst Autocopser filling-winding spindles for its Laurens Mills; 96 spindles of the same type have been purchased for Judson Mills. The company has purchased 6 Abbott winders for the McCormick Spinning Mill and Roberts Co. drafting change-overs for 35,232 spinning spindles in the Monarch Mills.

**Hermitage Cotton Mills,** Camden, S. C., is engaged in a $250,000 modernization program. Improvements are being made in the card room, 20,000 spindles are being changed over by Coleman Co., a new Barber-Colman spooler will be installed, and 25 used Draper Model E looms are being added.

**Jackson Mills,** Wellford, S. C., has installed two conveyor systems purchased from Engineered Products, Greenville, S. C.

**Johnston Mfg. Co.,** Charlotte, N. C., has started work on a $1,000,000 modernization program. New Whitin combers and slubbers will be installed. Saco-Lowell 3-over-4 drawing change-overs with 140 deliveries will be applied to drawing frames, and Whitin Superdraft change-overs will be applied to all spinning frames. All spinning and roving frames will be equipped with Pneumafil.

**Monarch Mills,** Union, S. C., has awarded the contract for a plant addition to Conway-Chalmes Construction & Engineering Co., Inc., Greenville, S. C.

**Pepperell Mfg. Co.,** Abbeville, Ala., has asked bids for an addition to its mill. Robert & Co. Associates, Atlanta, Ga., is the architect and engineer in charge of the project.

**Pickens Mills,** Pickens, S. C., has completed its modernization program that has been under way since 1948. The cost exceeded $750,000.

**Roberta Mfg. Co.,** Concord, S. C., has started a $70,000 modernization program.

**Spartan Mills,** Spartanburg, S. C., is planning to construct a $15,000 addition to its cotton-opening room.




OXY

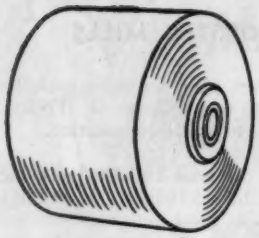
Fight Fire with Fire

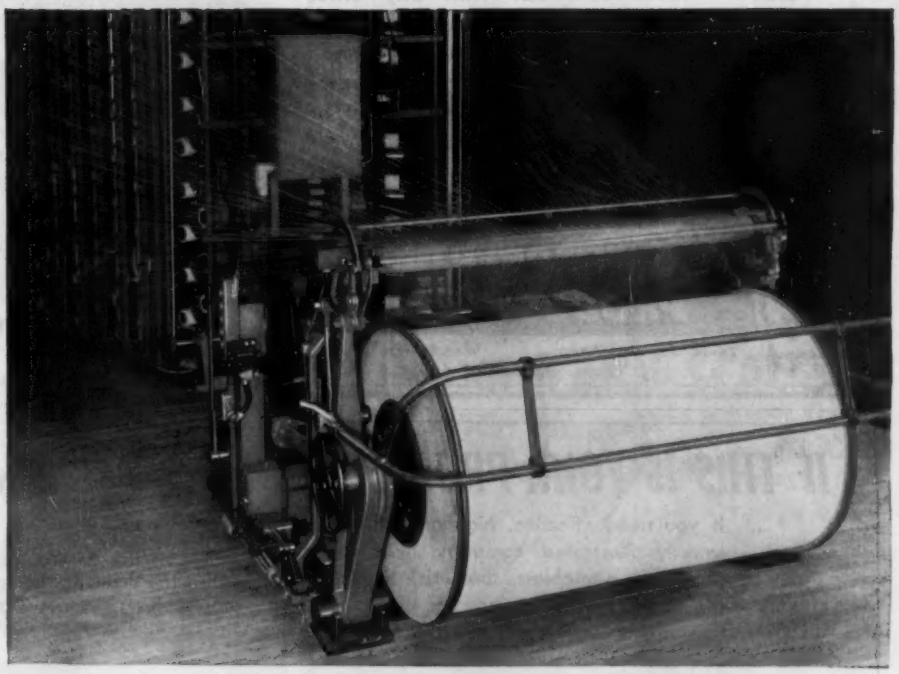
BARBER COLMAN

*There is a difference in the warps — and in the way they weave*

SUPER-SPEED

# WARPER *and* CREEL FOR 40"-head BEAMS





## LARGE PACKAGES HAVE ADVANTAGES IN THE STEPS THAT FOLLOW SPINNING

For example, with 24s yarn, a 12" bobbin with 3" ring will hold 15,000 yards, or *three times* as much as the standard bobbin. The new Type "D" Barber-Colman cheese holds 6½ lbs., or 120,000 yards, which is 2½ times as much as the standard Type "C" cheese. When these cheeses are wound onto slasher beams, the advantages vary with the size of the beam as follows: large cheeses provide 5 28"-head beams per cheese compared with 2 beams for standard cheeses; for 36"-head beams, the comparison is 3 to 1; and for 40"-head, also 3 to 1. In the slashing, assuming 1200 yards per loom beam, 28"-head beams provide 20 loom beams per set, 36"-head beams provide 33, and 40"-head beams 39. This reduces slasher creelings per 120-hour week to 5.68, 3.67, and 3.16 respectively. *The increase in loom beams per set, and the reduction in creelings per week, can provide substantial cost reductions in many mills.* If the large cheeses are used for twisting, similar advantages are gained, resulting in the winding of 2½ times as many twister bobbins per creeling.

The development of the large bobbin has led to the development of larger spooler packages which, in turn, has called for the development of a matching warper and creel. The new Barber-Colman Type "DW" Warper shown above will wind slasher beams as large as 40" head. It has all the features of the familiar Type "VW", plus several new ones such as a pivoted comb support which moves the comb forward as the beam fills. The driving drum, clutch, brake, and motor — all of which are larger and more rugged to handle the heavier loads — are now arranged back of, rather than beneath, the beam. The creel shown is not the new Type "DC" Creel but is the standard Type "VC", as the new Warper can be used with either the large *or* the standard package. *For further details, please write for descriptive literature, or ask your Barber-Colman representative.*

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# WHITIN YARN REELS *

The Whitin Yarn Reel (No. 975) will reel accu-

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## NEWS ABOUT MILLS (*Continued*)

**United Merchants & Manufacturers, Inc.**, New York, N. Y., has purchased the Julius Kayser plant at Westminster, S. C. The plant will be equipped to manufacture drapery material.

**Williamston Cotton Mills, Inc.**, Williamston, S. C., a newly formed subsidiary of Hesslein & Co., New York, N. Y., has purchased the Williamston Print Cloth Mill from Textron, Inc.

### WOOLEN AND WORSTED MILLS

**Botany Mills, Inc.**, Passaic, N. J., has voted to acquire Princeton Worsted Mills, Trenton, N. J., and Kingstree, S. C. The established brands of each company will be maintained.

**Brinton-Peterboro Carpet Co. Ltd.**, Peterborough, Ont., has installed new looms as part of its three-year modernization program aimed at increasing efficiency.

**Deseret Industries**, Salt Lake City, Utah, is establishing a new plant for the manufacture of rugs. Stewart B. Eccles is head of the organization.

**General Felt Products, Inc.**, Chicago Heights, Ill., has asked bids for a new one-story mill. The cost is reportedly over $150,000. A. Epstein & Sons, Chicago, is the engineer.

**Medway Woolen Mills, Inc.**, Medway, Mass., has been formed with a capital of $100,000. John H. Reardon is the president.

### SYNTHETICS MILLS

**Burlington Mills Corp.**, Greensboro, N. C., is constructing two warehouse additions at Burlington, N. C.

### KNITTING MILLS

**Alamac Knitting Mills**, Indian Orchard, Mass., has installed the Permathal-Everglaze process for shrinkage control at a reported cost of $250,000.

**Bella Co.**, Mt. Pleasant, Tenn., has returned to Reading, Pa., where it will occupy the former Gold Seal Hosiery Mill.

**Burlington Mills Corp.**, Greensboro, N. C., will erect a $3,000,000 hosiery plant (not $300,000 as previously reported) at Franklin, N. C., with knitting operations scheduled to begin next spring.

**Dura-Tred Hosiery Mills**, Burlington, N. C., has begun a $100,000 expansion program that includes the construction of a two-story annex to its plant on Hawkins St. The company is installing 20 VIP knitting machines for half-hose production, which will bring the total machines in operation to 126.

**General Knitting Mills, Inc.**, Monroe, N. C., has leased a building at Marshville, N. C., and will transfer its shipping department there. The space in the plant at Monroe, N. C., is needed for 30 additional knitting machines.

HADLEY CORP., Weaverville, N. C., a division of Cashmere Corp., has begun the manufacture of full-fashioned cashmere and woolen sweaters in this new mill. The complete manufacturing process will be handled here. Lockwood Greene Engineers, Inc., New York, N. Y., was the architect-engineer.




**42** STOCK SIZES


## NEWS ABOUT MILLS (*Continued*)

Only Damp-Tex among wet surface enamel brands offers a system of painting that meets 23 special conditions. Non-toxic surface without flavor tainting odor? New non-yellowing whiter white? Want 30-minute drying? Extreme hardness and resistance to mildew acids and alkali? Just specify your special problem. The Damp-Tex System may give you the tailor-made answer.

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DAMP-TEX FOR
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Please send representative to survey our plant and recommend the most advanced solutions without obligation.
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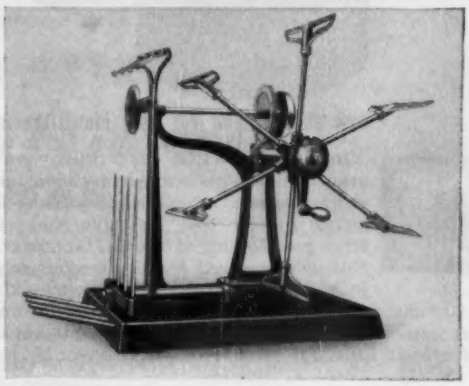
# WHITIN YARN REELS *

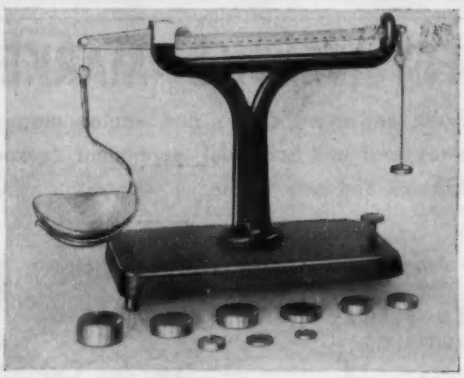
The Whitin Yarn Reel (No. 975) will reel accurately up to 120 yards of yarn with uniform tension from bobbins and is used in conjunction with roving scales or yarn testers to determine count, stretch, or strength of cotton, wool, worsted, linen, synthetic or other yarns.

The reel is available with either four or seven spindles and is 54" in circumference. A graduated dial indicates the number of yards reeled from each spindle. An automatic feed motion lays the yarn flat on the reel.



*and*

# ROVING or YARN SCALES *



A precision scale (No. 980) for weighing roving yarn or samples of any material. Weights calibrated for each scale are available for weighing up to 1 lb. by tenths of grains. Scoop is made of Monel metal; beam and pea are dull chromium plated; weights are stainless steel and furnished in wooden case.

For weighing samples or small objects, a similar scale (No. 982) of 1 lb. capacity is available with weights calibrated in 10 thousandths of a pound, or in the metric system up to 500 grams by hundredths of a grain.

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## MACHINE WORKS
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* Formerly made by Browne & Sharpe Mfg. Co. Repair orders and queries should be addressed to Repair Department, Whitin Machine Works, Whitinsville, Mass.

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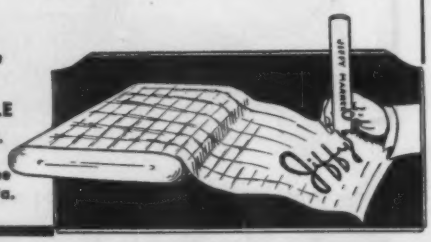


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## NEWS ABOUT MILLS *(Continued)*

**Gentle Hosiery Mills, Inc.,** Booneville, Mass., has been chartered with a capital of $60,000. The company is erecting a 152x120-ft. mill on Magnolia Dr.

**Gotham Hosiery Co.,** New York, N. Y., has acquired Meridian Industries, Inc., Meridian, Miss. Gotham knitting operations in Philadelphia will be discontinued and some of the equipment will be moved to Meridian. Finishing operations will be continued at the Gotham plant in Philadelphia.

**Koury Hosiery Mills, Inc.,** Burlington, N. C., has been capitalized at $100,000 to manufacture hosiery. Ernest Koury, Marie C. Koury, and Maurice Koury, all of Burlington, are the incorporators.

**McGregor Hosiery Mills Ltd.,** Toronto, Ont., will construct a mill building at the northwest corner of Highway No. 400 and Finch Ave., Toronto.

**Mercury Mills Ltd,** Hamilton, Ont., has changed its name to Mercury-Chipman Knit Ltd.

**Midland Mills of North Carolina, Inc.,** Midland, N. C., recently began the manufacture of cotton knitted goods, including infants' and children's wear, T-shirts, and underwear.

**Nolde & Horst Co., Inc.,** Reading, Pa., has been purchased by Chester H. Roth Co., Inc., New York, N. Y.

**Se-Ling Mills Corp.** has purchased H. R. H. Silk Hosiery Mills, Inc., Moberly, Mo. Se-Ling is a wholly owned subsidiary of Prestige, Inc., New York, N. Y.

**Soft-Spun Knitting Mills,** Henderson, N. C., has begun the construction of a new plant. 60x90 ft. The cost is estimated at $40,000.

**Southern Knitwear Mills, Inc.,** Charlotte, N. C., has awarded a $250,000 contract to Frank H. Conner, Charlotte, for a plant addition.

**Strutwear, Inc.,** Minneapolis, Minn., plans to construct a new mill at Clarksdale, Miss., for underwear manufacture. The cost is reported at about $100,000.

## DYEING AND FINISHING PLANTS

**Colonial Piece Dye Works,** North Bergen, N. J.—Dean M. Lewis, formerly secretary-treasurer, has purchased controlling interest in this company from William Knipscher.

**Guaranty Silk Dyeing & Finishing,** St. Catharines, Ont., is continuing to operate under the new name of Resi-Tex. Canadian Pittsburgh, Toronto which recently purchased the company, is operating it as a wholly owned subsidiary. W. M. Macartney continues as president and general manager.

**Lee Hosiery Finishers, Inc.,** Mt. Pleasant, Tenn., recently organized, has leased the plant of Bella Co. and plans to expand the hosiery-finishing operations. Additional equipment has been ordered. Incorporators are Merle S. and Lee Linkel and D. L. Alexander.

**Nashua Finishing Corp.,** Nashua, N. H., a new firm, will take over and operate the textile-finishing plant currently occupied by Indian Head Mills, Inc. The mill will be converted to a printing and finishing plant.

**Printed Fabrics Corp.,** Carrollton, Ga., recently organized, is operating in a part of the former Mandeville Mills. Production will be expanded in the near future. Additional equipment will be installed. The company is a subsidiary of Linen Guild, Inc., New York, N. Y.

**Powdrell & Alexander, Inc.,** Danielson, Conn., has enlarged its facilities for finishing by the installation of equipment for continuous vat dyeing and continuous bleaching and preshrinking.

**Queen Print Works, Inc.,** Providence, R. I., will construct a brick-and-wood addition to its plant. The cost will be $10,000.

**Seyer Silk Dyeing Corp.,** Haledon, N. J., has purchased the former mill of Delta Finishing Co., Philadelphia, Pa.

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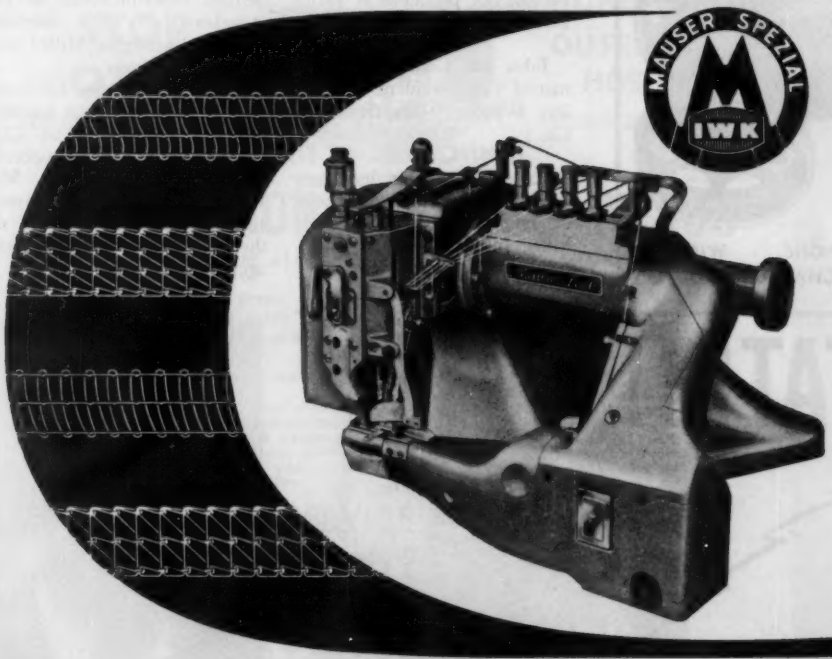
**MAUSER SPECIAL** Feed-off-the-arm Flat-seam Machine **MAUSER LOCK**




with trimmer and differential feed dog producing an extremely elastic 4-needle-covering seam with one lay in thread for the trimming, sewing together and hemming of all kinds of hosiery as well as elastic material.

- **Number of needles 3 and 4**
- **Breadth of seam 7/32" and 9/32"**
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The automatic lubrication system and the oil circulation controls greatly facilitate the service and maintenance of the machine.

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- RUGGED
- ACCURATE
- DEPENDABLE

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STATIC!

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# NEWS about MEN

**Arthur B. Barnes** has been elected chairman of the board of Ponemah Mills, Taftville, Conn. **Henry A. Truslow** has succeeded Mr. Barnes as president and treasurer.

**Frank Barry** has been named superintendent of Piedmont Mills, Greenville, S. C.

**P. C. Beatty**, superintendent, has been named manager of the Granite Plant of Cone Mills Corp., Haw River, N. C. He succeeds **F. A. Whitney**.

**M. A. Bennett** has been elected president of Circle-Bar Knitting Co. Ltd. and Botany Dryspinners Ltd., Kincardine, Ont., and Imperial Cloth Co. Ltd., Listowel, Ont.

**James H. Blore**, assistant editor of TEXTILE WORLD, has been promoted to associate editor.

**Leon Brumberger** has been named vice president at Wilco Hosiery Mills, Inc., Helen, Ga.

**John H. Callen** has been named vice president of Peerless Woolen Mills, Rossville, Ga.

**Ralph H. Carter** has been named vice president in charge of rayon production at Beaunit Mills, Inc., New York, N. Y. **Dr. H. Hofmann** has been named vice president and technical director.

**EDGAR W. STEWART has been named a director and a member of the executive committee of Julius Kayser & Co., New York, N. Y. Mr. Stewart will continue as president of Catalina, Inc., recently acquired by Kayser.**

**Clinton Clark** has been named superintendent of the Asheboro, N. C., finishing plant of Burlington Mills Corp.

**George W. Daisy** has been named manager of the Barbour Mill of Linen Thread Co., Inc., Paterson, N. J., succeeding **Robert J. Kennedy**. Mr. Kennedy has been transferred to the administrative staff of the general manufacturing manager.

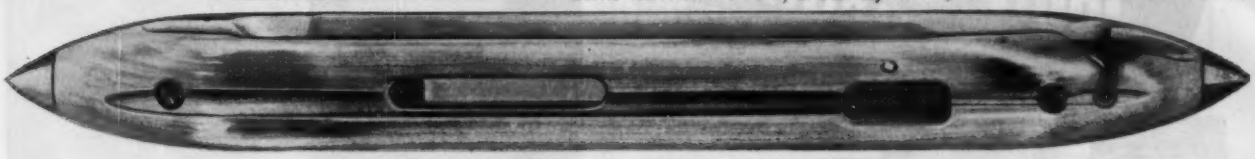
**WILLFRED W. LUFKIN, JR., (left) and T. SCOTT AVARY (right) have been elected to the board of West Point Mfg. Co., West Point, Ga.**

*You'll be hearing a lot about the amazing*

US

WOOD · *N* · DURE PATENTED SHUTTLE *

*Take natural wood,* **treat it,** *and you have* **WOOD-N-DURE**



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It will better withstand **stresses, shocks and blows** • its "hardened" wearing surfaces afford greatly increased resistance to the wear and abrasion of the loom • when it **does** begin to wear, it wears smoothly and evenly • it resists splintering of the edges • it eliminates the necessity for any fiber-cladding • it is more impervious to atmospheric changes • the treatment leaves the center-section relatively soft to afford maximum holding power around the tip • the natural wood is **toughened,** while the resiliency is **increased!**

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"WESCO" TOPS THE WORLD'S BEST KNITTING MACHINES

**FOR UNDERWEAR OUTERWEAR HOSIERY**

# PRODUCTION WISE-IT'S WESCO

***USED ON ALL THESE KNITTING MACHINES:***

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| Bentley | Edmos | Mellor, Bromley | Stibbe |
| Blackburn | Fidelity | Ordnance Gauge | Supreme |
| Brinton | Jacquard | Precision Knitters | Tompkins Bros. |
| Cooper | Lamb | Scott & Williams | Wildman |
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Wesco engineers are never satisfied. They keep pace with the developments of all new outerwear, underwear and hosiery knitting machines. The end result is that Wesco is standard equipment in the finest mills throughout the world. Wesco Stop Motions guard machines against press-offs, prevent needle breakage, improve the work and increase profits. You can't go wrong when you specify Wesco Stop Motions.

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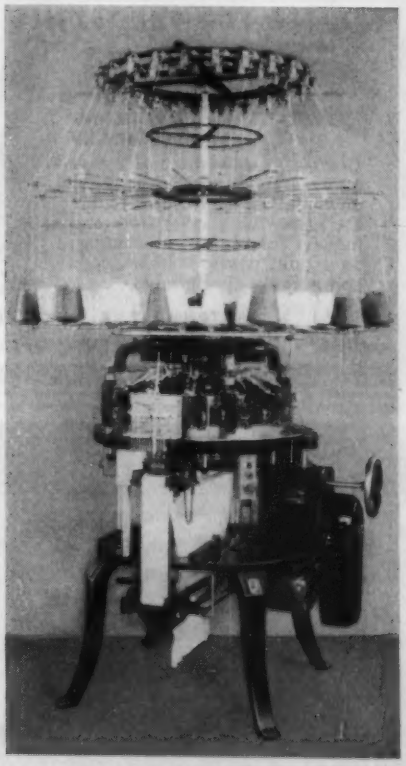
***Another of a Series of Knitting Machine Builders. Others to follow***



JACQUARD KNITTING MACHINE

Johnson Joint with SYPHON ELBOW
3000 Series
ASSEMBLY PLATE — Holds internal parts in position when head is removed.
SELF-SUPPORTING — Needs no external supports of any kind.
SYPHON ELBOW — Permits use of straight pipe for syphon. Can be inserted or withdrawn right through the joint.

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on this Series 3000 Johnson Joint and the syphon elbow. Remember Johnson Joints have written an unmatched service record . . . are first choice among mill men and machinery makers alike . . . and can fit all operating needs.

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FOR TESTING WINDING DENSITY

Created to solve the problem of maintaining uniform density for unwinding in later processes, the DUROMETER saves time and money. Tests density of windings on spools, cones, bobbins, cops and package dyeing tubes.

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## NEWS ABOUT MEN *(continued)*

**M. E. KELLAR (left) has been named vice president and treasurer of E. T. Barwick Mills, Inc., Chamblee, Ga. F. B. McCARTY (right) has been named vice president in charge of manufacturing at the Dalton, Ga., plant.**

**Forrest Deaton** has been named superintendent of the Burlington Mills Corp. plant at Burlington, N. C. **Claude R. Moore** has been named superintendent at the Marion, Va., plant.

**Charlie C. Hertwig** has been named chairman of the board of Bibb Mfg. Co., Macon, Ga., succeeding **William D. Anderson**, resigned. Mr. Hertwig will continue as president.

**Glenn D. Jackson, Jr.,** has been named vice president and general manager of the newly formed Nashua Finishing Co., Nashua, N. H.

**Roy T. Johnson** has been named superintendent of Rockwood Mills, Rockwood, Tenn., to succeed the late **Charles Glass.**

**W. Marion Kirby** has been named superintendent of Wennonah Cotton Mills Co., Lexington, N. C.

**Richard Levi** has been elected president of Star Woolen Co., Cohoes, N. Y., succeeding the late **Sidney Stein.**

**Wilbur L. McBrayer** has been named resident manager of the Florence Plant of Cone Mills Corp., Forest City, N. C.

**F. H. Murphy** has been named to fill the new position of production manager of the Belding-Corticelli Ltd. mill at St. Johns, Que.

**John E. O'Brien** has been appointed resident manager of the Baltic Mills of American Woolen Co., Enfield, N. H.

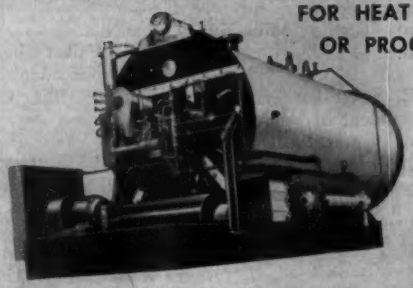
**Homer Roberts** has been named general manager of Bama Cotton Mills, Enterprise, Ala., and Riverview Mills, Inc., and Geneva Cotton Mills, both located in Geneva, Ala.

**Herman A. Sayles** has been named plant manager of Abbot Worsted Co., Seneca, S. C.

**JOHN J. SMITH (left) and B. H. BOSSIDY (right) have been elected vice presidents of, respectively, Chicopee Mfg. Corp. and Chicopee Mills, Inc., New York, N. Y.**

# STEAM

FOR HEAT
OR PROCESS



A complete steam plant backed by undivided responsibility • Shipped completely assembled • More than 80% thermal efficiency guaranteed • 4-pass design provides 5 sq. ft. of heating surface per b.h.p. • Built-in induced draft eliminates need of expensive chimney • Simple installation • Clean, quiet operation • Heavy-duty construction assures long-lived dependability

Superior Steam Generators are manufactured in 18 sizes from 20 to 600 b.h.p. for pressures up to 250 p.s.i. or for hot water heating.

For complete details, write for Catalog 618

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SUPERIOR STEAM GENERATORS

# Perfect Butted Seams for Faster and Smoother Finishing

*The Rayer & Lincoln Rotary Sewing and Marking Machine,* fitted with the latest *Dinsmore Improved Positive Stripping Attachment* and showing the application of the *Merrow Butted Seaming Head.* Sews a strong, flat butted seam, trims the goods evenly with a narrow margin and automatically marks each piece as sewing is done. This machine will save its cost each year—you need it for modern, low-cost finishing. The Merrow Butted Seaming Head can be applied to your present machine—write for estimate of cost.

**DINSMORE MANUFACTURING CO.**

**BOX 267** **SALEM, MASS.**

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**First Choice of the Textile Industry!**

Caldwell offers the industry a complete tank service, including solid Stainless and Stainless-lined wood tanks and tubs, of any shape or size.

If you're thinking of installing or replacing a tank, let our 60 years' experience in building high-grade tanks serve you. *Send for our catalog, today!*

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# ROME SOAP MFG. CO.

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SPINNING MACHINERY FROM INGOLSTADT THROUGHOUT THE WORLD!

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*Uniform*
**PACKAGE DYEING AT LESS COST**
***With Skintex Wrappers***

You can get *more uniform* package dyeing and at the same time *cut your costs* with absorbent, strong Skintex Wrappers. You *get more uniformity* because Skintex Wrappers are designed especially for package dyeing . . . with high penetration and fast capillary action to bring the dye to the innermost windings of the package. *You cut costs* because Skintex is inexpensive. With springs you eliminate the cost of cotton socks. Time-motion studies show that it is faster to apply and remove Skintex. Eliminates snagging and waste; saves costly yarn. With tubes you eliminate undyed yarn resulting from blocking by solid area between the perforations of the tube. Enables you to see re-use fiber dyetubes again and again. Skintex Wrappers can be used in all types of dye. Investigate now . . . get more uniform dyeing at less cost.

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Technical Papers Corp., 25 Huntington Ave., Boston 16, Mass.
*Send without obligation free trial lot of Skintex Wrappers*
for ☐ Springs ☐ Tubes

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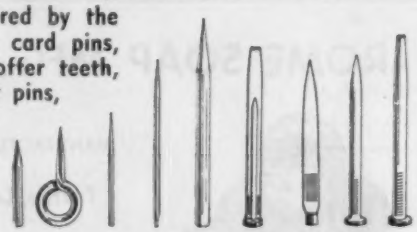
Everything required by the textile industry: card pins, cordage pins, doffer teeth, apron slats, slat pins, dryer plates, brass tenter plates, corrosion resistant pins.



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Volume production by precision methods permits attractive prices on all types. Prompt deliveries. W. H. Bagshaw Co., Inc. (Est. 1870) 63 Pine St., Nashua, N. H.

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## NEWS ABOUT MEN *(Continued)*

**George Pihl** has been named plant superintendent.

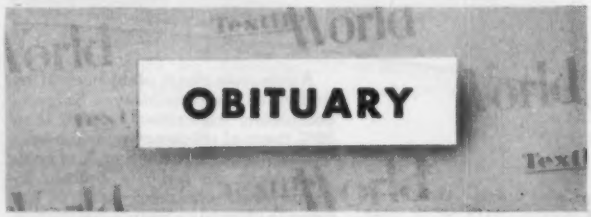
**Lynwood Smith** has been elected executive vice president of Rockford Textile Mills, Rockford, Ill.

**Charles C. Swett** has been appointed president of Wilton Woolen Co., Wilton, Me. He succeeds **Earl B. Foss, Sr.**, who plans to continue with the company as a member of the board.

**Benjamin Thomas, Jr.** has been named general assistant to the president at Stonecutter Mills Corp., Spindale, N. C.

**J. C. Walker** has been named superintendent of Oakboro Cotton Mills, Oakboro, N. C.

**Harold P. Zettwoch** has been named vice president of Coats & Clark, Inc., Albany, Ga.




**General Butler Ames**, 83, vice president and director of Ames Textile Corp., Lowell, Mass.

**Clarence J. Brown**, 57, general superintendent of Blue Ridge Textile Co., Bangor, Pa.

**William E. Buford**, 67, president of Charlottesville Woolen Mills, Charlottesville, Va.

**Frank H. Cooper**, 58, assistant superintendent of Fulton Bag & Cotton Mills, Atlanta, Ga.

**George H. Cornelson, Sr.**, 56, vice president of Clinton Cotton Mills and Lydia Cotton Mills, Clinton, S. C.

**Otis M. Dunham**, 74, assistant treasurer of Wamsutta Mills, New Bedford, Mass.

**Charles L. Glass**, 41, superintendent of Rockwood Mills, Rockwood, Tenn.

**Reuben W. Jennings**, 80, superintendent of the Lanett Mill Div. of West Point Mfg. Co., West Point, Ga.

**Archibald Lammey**, 57, secretary, treasurer, and a director of Charlottesville Woolen Mills, Charlottesville, Va.

**George Lawrence**, 58, general manager of Swift River Woolen Co., Westerly, R. I.

**Fred G. Lehm**, 64, manager of West Chester Hosiery Mills, Inc., West Chester, Pa.

**John W. Long**, 68, former superintendent of Groves Thread Co., Gastonia, N. C.

**Connell R. Miller**, 36, executive vice president of Texas Textile Mills, Dallas, Tex.

**Frank J. Olewine**, 62, vice president in charge of the New York office of May Hosiery Mills, Nashville, Tenn.

**J. Roland Paquette**, 51, vice president of E. E. Paquette & Sons, Woodstock Ont.

**Edward C. Pfeffer**, 70, a director and vice president of Cluett-Peabody & Co., Inc., Grosvenor Dale, N., Conn.

**Hugh F. Putman**, 44, foreman at Coats & Clark, Inc., Albany, Ga.

**George T. Seckel, Jr.**, 74, a director of the Waterville Textile Mills, Inc., Waterville, N. Y.

**Sidney J. Stein**, 65, president of Star Woolen Co., Cohoes, N. Y.

**Fielding Wallace**, 74, president and treasurer of Southern Press Cloth Mfg. Co., Augusta, Ga.

**Grahame Wood**, 80, president of Selma Mills, Inc., Selma, N. C.

**J. Frank Wysor**, 73, a member of the board of directors of Virginia Maid Hosiery Mills, Pulaski, Va.



SEARCHLIGHT SECTION

**POSITIONS WANTED**
(Continued from page 235)

## POSITIONS OPEN

We can place—MANAGER wln. mill, also supt.; asst. mgr. spinning mill (South); supt. rayon warp preparation and weaving; production mgr. sweater mill; general foreman twine polishing, balling, etc.; rayon designer (N. Y. City).

OVERSEERS for wstd., piece goods dye.; French draw. and spin.; cot. weav. Army duck (South); wstd. draw., card., comb., gilling, scour., spin., wind. and twist.; warp preparation and weav. elastic fabrics (foreign); woolen card.; wool. finish. (West); weav. and dress. rayon-filament warps; finishing laces and nets; spin., warp. and wind. 3rd shift; wool scour.; cot. ring spin. combed yarns (South).

SECOND HANDS woolen card.; cot. piece goods and yarn dye.

MASTER MECHANICS and chemical engineers; chemist expert on resin finishes; soap salesman; machine printers; time study engineers; erector for cards, garnetts and pickers; salesman to sell wool, waste and garnetts.

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## TEXTILE ENGINEER WANTED

**Textile school graduate as Assistant to Superintendent for research and new developments in southern throwing plant. Need not have practical experience. Write**

**P-4958,** Textile World
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### POSITIONS VACANT

QUALITY CONTROL Engineer to install and administer complete quality control program for new floor covering plant in Southeast. Engineering degree and some experience required in application of statistical quality control procedures to textiles. P-4768, Textile World.

WANTED—ASSISTANT Engineer. Recent engineering school graduate with some experience in the textile finishing field. Dye, print and finishing plant located in the Metropolitan area. P-4910, Textile World.

WANTED 1 Superintendent for worsted knitting yarn mill processing both synthetic and wool. Experience required on pacific converter, Warner & Swasey pin drafters and Saco-Lowell long draft roving and spinning frames. Please write in detail to box P-4997, Textile World stating age and previous experience as on above.

WANTED POSITIONS are open in Southern mill for section hands experienced on Warner & Swasey pin drafters and Saco-Lowell long draft roving and spinning frames on worsted system. Please write Box P-4998, Textile World stating age and previous experience.

### SELLING OPPORTUNITY OFFERED

LEADING TEXTILE Preparatory machinery manufacturer has openings for agents on commission basis in New England, New York, and Pennsylvania, Far West, and Canada. Must be established and have thorough knowledge of spinning and twisting. Give all details in first letter. RW-4799, Textile World.

### POSITIONS WANTED

THROWING MILL Supt. or manager. Twenty-two years experience. Quality throwing rayon, nylon, dacron for hosiery tricot, lace and specialty work. Thorough knowledge quality control, cost and incentives. Labor relations and references excellent. Willing to go anywhere. PW-4975, Textile World.

WILTON CARPET—Textile technician. P.T.I. training, several years weaving exp. des. supervisory or tech. pos. PW-4974, Textile World.

TEXTILE GRADUATE, experienced in all fibres, presently employed, is looking for new opportunity, age 40, married. PW-4762, Textile World.

TECHNICIAN, KNITTER—mechanic, machinist, highly trained, experienced, inventive ability, wishes to relocate, machine shop or knitting mill, anywhere from North to South America. PW-4955, Textile World.

POSITION WANTED: Are you looking for an ambitious young man, a PTI graduate, who can be depended upon to shoulder responsibility, who can be of technical assistance, build sales for your organization, as well as taking care of liason work between sales office and mill, then write PW-4954, Textile World.

(Continued on page 236)

## 25 YEARS OF TRICOT EXPERIENCE FOR SALE

**One of the most widely experienced men in the Tricot industry plans to re-enter the field early in 1955. Will be available on either a consulting or permanent basis**

Experience covers every phase of single and multiplant management from throwing through finished fabrics.

**PW-4976,** Textile World, 330 W. 42 St., New York 36, N. Y.

## FOR SALE

*(Additional For Sale Advertisements on pages 236-239)*

## SURPLUS MACHINERY FROM BOTANY MILLS, INC.
## LARGE FINE WOOLEN AND WORSTED MILL

### WEAVING

192 "C & K", W-2, 84" Looms

### FINISHING

5 "Hemmer" Dry Mills, single
1 "EMI" Dry Mill, double
2 "Rodney Hunt" Fulling Mills
1 "BMI" Soap Padder, 42"
1 "BMI" Soap Padder, 77"
1 "Jahr" Soap Padder, 71"
1 "Uxbridge" Tacker
2 Parks & Woolson 66" Board Winders
1 "BMI" Brushing & Rolling Machine, 54"
1 Parks & Woolson 66" Double winder
1 "Ferdinand Mathonet" Sponge & Brush Mach.
1 Gessner Spot Proofing Machine
1 Gessner Hi Production Rotary Press
1 Gessner Hydrolizer
1 Jahr stretching frame
1 Parks & Woolson Model A Shear
1 Parks & Woolson 3 cylinder plush shear
1 Schulze Shear
1 Krantz Single cylinder gap rest shear

### FINISHING

2 Parks & Woolson Double shears
3 Jahr Double shears
1 Parks & Woolson Measuring Machine
1 Andrews & Goodrich Cloth Conditioner
2 Parks & Woolson Measuring Machines
3 Parks & Woolson Book fold winders
2 David Gessner Semi-Decaters
4 "R & L" Stainless Steel Dye Machines, 70"
1 "R & L" Stainless Steel Dye Machine, 36"
3 "R & L" Stainless Steel Dye Machine, 18"
1 "R & L" Stainless Steel Dye Machine, 42"
1 "Rodney Hunt" Stainless Steel Dye Machine, 20 ft.
1 "Rodney Hunt" Stainless Steel Dye Machine, 72"
6 "Rodney Hunt" nStaliess Steel Dye Machine, 42"
1 "Arlington" Scutcher, 7 "
2 "Tolhurst" Extractors
3 "Curtiss & Marble" Tacking Machines
2 "Skene & Devalle" Backwasher Bowls
2 "Taylor Wadsworth" Backwasher Dryers
2 "Schlumberger" 3 head gills
1 "Proctor & Schwartz" Skein Yarn Dryer

**JOHN J. McCLOSKEY, INC.**
W. Knight Avenue
Collingswood 7, N. J.

**McDOWELL ASSOCIATES, INC.**
41 E. 42nd St. - Suite 717
New York City 17, N. Y.

## SEARCHLIGHT Equipment Spotting Service

**This service is aimed at helping you, the reader of TEXTILE WORLD, to locate used and surplus new textile machinery and equipment not currently advertised. (This service is for user-buyers only.) No charge or obligation.**

**First, read the dealer ads on the following pages. A 5-minute study may locate the equipment now.**

**Second, send in the specifications of the equipment wanted on the coupon below, or on your own company letterhead, to**

**Searchlight Equipment Spotting Service**
**c/o Textile World, 330 W. 42nd St., N. Y. 36, N. Y.**

**Your requirements will be brought promptly to the attention of the used equipment dealers advertising in this issue. You will receive replies directly from them.**

**Searchlight Equipment Spotting Service**
**c/o Textile World, 330 W. 42nd St., N. Y. 36, N. Y.**

*Please help us locate the following used equipment:*

.....

.....

.....

NAME ..... TITLE .....

COMPANY .....

STREET .....

CITY ..... ZONE ..... STATE ..... 1-55

SEARCHLIGHT SECTION

# LIQUIDATION SALE

## GOSNOLD MILLS, NEW BEDFORD, MASS

8—H&B Blending Feeders Age 1946
2—H&B Bale Breakers with 2 beaters & cages. Age 1946
15—Saco Lowell Cards, 40" wide, 27" doffer, 110/120 wire
90—Saco & Pettee Cards, 40" wide, 27" doffer, 110/120 wire
6—H&B Hi-Draft 10 x 5 Slubbers, 104 spdls. Age 1940
53,000—Spindles Whitin Super-Draft, Whitin Long Draft and Saco Lowell Roth Long Draft.
14—Whitin Twisters, 240 spdls., 2½" ring, Wet Twisters
2—Barber Colman Spoolers, Type C, Model KK; 1—252 spdls., 1—306 spdls. Ages 1944-50.
6—Foster Model #102 Winders, 120 spdls., 3 cone, 3 springs, Age 1952
2—Whitin Schweiter Winders, 51 spdls. ea., Bobbin Conveyor, Age 1949
2—Abbott Quillers, 120 spdls., with bobbin hoist. Age 1953
2—Terrell Bobbin Strippers, Model L. Age 1951
2—Cocker Hi Speed Warpers, 54¼", with 800 end creel
2—Johnson Slashers, 68" wide, 7 S.S. drums, Age 1948
7—Saco Lowell Slashers, 2 cyl., 60" wide, Vari-drive, Brown controls
48—Draper Model XD Looms, 54" R.S., 25 harness, Diehl trans. 1951
192—Draper Model XD Looms, 54" R.S., 25 harness, Age 1947-48
96—Draper Model XD Looms, 54" R.S., 25 harness, Age 1942
606—Crompton & Knowles C6 Looms, 4 x 1 box; 456—52" R.S., 72—56" R.S., 80—68" R.S. Age 1941-46.
48—Draper Model XX Auto. Looms, 49½" R.S., 24 harness dobby

**NEW YORK OFFICE** TELEPHONE COrtlandt 7-1591
**NEW BEDFORD OFFICE** TELEPHONE New Bedford 3-9994

**REPUBLIC TEXTILE EQUIPMENT CO.**
40 WORTH STREET NEW YORK CITY
REFINANCING · APPRAISALS · PURCHASE · SALE · LIQUIDATION OF MILL PROPERTIES

# LIQUIDATION SALE

1—set 14 S. S. Dry Cans 60" x 23"—$2700.00
1—60' x 60" W & J Tenter Frame, S. S. clips
2—V. V. 60" Hyspeed Tubers
1—V. V. 54" Hyspeed Tuber—$600.00
1—40' x 60" V. V. Tenter Frame, closed gears, S. S. clips
1—set Mt. Hope Guides with adjustable stands—$225.00
24—Spindles (Whitin Schweiter) automatic quilling—$110.00 per spindle
1—Johnson 7 can Slasher—$1200.00
4—Werner 50" S. S. Jiggs—late model
1—Werner 80" S. S. Jigg
1—3 roll 68" Hydraulic 30 ton Calendar $4500.00
1—Hinnekens Boil-Off
1—V. V. 54" Embosser—2 roll—$1800.00
1—10' S. S. Dye Beck—$600.00
1—V. V. 48" Decatizer, Pump, Motors and Blanket—$1500.00
1—8' S. S. Dye Beck—$500.00
1—60" 2-rubber roll Quetch with baloney roll expander
1—Merrow Sewing Machine 60-3D.B. table and motor—$200.00
1—68" Progressive Hyspeed Exam. and Measuring Mach. with reverse—$500.
1—60" Hercules Extractor—$600.00
1—V. V. 50" Scutcher—$600.00
1—Palmer 63"-steam jacketed #3 B. B. Reeves—$1500.00
3—Textile Squeeze Sets, 96" wide, 2 rubber rolls 18" and 12" Diam. roller bearings.

## A & M BLANK CO., INC.

301-313 East 22nd St. (at 7th Ave.) Paterson, N.J.
SHerwood 2-1367-8

# BUY NOW—PRICES ARE RISING

36—Spinning Frames Roth L/D 2¾-3" g.
2—#44 Winders 120 sp., bakelite rolls
28—H&B Cards, 37" & pickers to match
2—Frames Whitin Interdraft, 9 x 4½", 1949
500—New Jack Spools, 10" x 36"
3—#34 S/L Air Filters
2—H&B Twisters, 5¼" g. 4½" ring
2—Roving Bobbin Strippers
40—Section Beams, Allen, NYLON, 28" x 54¼"
60—Section Beams B/C, Allen, 28 x 54½"
1—Van Vlaanderen 7-can slasher 24" beams
4,000—10" x 36" Roving Cans
10—Bahnson Humidifiers H—550V & we have controls
4—Cone Creels, Cotton type-400 ends each
40—Saco & Pettee Cards 40"
3,000—Used Motors, 220-440-550V
3—LL B/C Knotting Machines—cheap

## LOOMS & PARTS

100—Loom Beams 45½" x 22" head
100—Loom Beams 44" x 24" heads
20,000,000 Drop wires, all types
300 Dobbies—10, 20, 25 harness
10,000,000 Heddles, all styles & sizes
1,500—Stafford Thread Cutters, complete
28—W3 1936—32" B/S 4 x 1
60—S6 1943—36" b/s S-S clutch
200—XK 44" cloth ½ dobby ½ plain
48—XD 46" cloth dobbys
200—C6 4 x 1 48", 50", 60" cloth
350—S3 4 x 1, 2 x 1, 48", 50" cloth

MACHINERY SALES CORP. P. O. BOX 560 NEW BEDFORD, MASS.

## POSITIONS WANTED

(Continued from page 235)

HIGHLY TRAINED and experienced technician and knitter—mechanic on flat knitting machines, inventive ability, wishes to relocate. Machine shop or knitting mills. PW-4821, Textile World.

RASCHEL FOREMAN 20 years experience powernet, lace etc. Presently employed desires position in or around New York. PW-4837, Textile World.

NEW YORK liaison—mill superintendent manager, technician, experienced synthetic, plain, jacquard, lancies wishes responsible post. References. PW-4932, Textile World.

QUALITY CONTROL New York or Mill. 40 years experience, silk rayon and cotton manufacturing and finishing. PW-4848, Textile World.

POSITION WANTED Pile Fabric weave room Supt., 30 years experience on both shaft and jacquard on all types of looms. Creative and styling ability have had 2 positions in the past 20 years. PW-4940, Textile World.

## CORDUROY CUTTING PLANT FOR SALE

Fully equipped plant producing highest quality work on a volume production basis. Consisting of 10 Cutting Machines, Napping, Inspection Machines, Supplies, Parts, Trucks, etc. Complete and ready to operate. Assistance given if desired. Real opportunity.

BO-4973, Textile World
330 W. 42 St., New York 36, N. Y.

## WANTED

## DYESTUFFS

Will buy your surplus and obsolete dyes and chemicals for cash.

NEW ENGLAND PRODUCTS CO.
91 Oliver St. Boston, Mass.
Established 1919

## WANTED—DYESTUFFS

Chemicals — Pigments — Solvents
Plasticizers — Plastics — etc.
By-Products — Wastes — Equipment

CHEMICAL SERVICE CORPORATION
80-10 Beaver St. New York 5, N. Y.

WANTED

**Flax wet ring spinning frame with 160 to 200 spindles using about 2 ½" ring.**

W-4576, Textile World
330 W. 42nd St., New York 36, N. Y.

WANTED

**20 TUBE SMITH—DRUM SKEIN DYEING MACHINE**

STAINLESS STEEL IN GOOD CONDITION

P. O. Box 1329, Paterson, N. J.

WANTED

**WOOL SAMPLE CARD AND LARGE PACKAGE WOOL RING TWISTER**

Both must be reasonably priced and in good condition.

W-4916, Textile World
330 W. 42 St. New York 36, N. Y.

WANTED

**DRAPER X2 LOOMS 42" or 40"**

W-4885, Textile World
330 West 42nd St., New York 36, N. Y.



SEARCHLIGHT SECTION

## ANNOUNCING THE REMOVAL OF OUR GENERAL OFFICES To

## DYEING MACHINES

# TWISTERS FOR SYNTHETICS

## Machinery Complete With Bobbins (Some Nylon Type) Racks, Etc.

**3—ATWOOD 5-B RING TWISTERS**
10 oz.—6" spacing for 6" Traverse spool—3¼" Eadie rings—double 2" feed rolls —2 machines 112 spindles each, other 100

**5—Yarn Conditioning BOXES**
2—Late Type H & W Yarn Conditioning Boxes (1 Steam, 1 Electric)
3—Lydon Yarn Conditioning Boxes

**24—UNIVERSAL #50 NYLON CONING MACHINES**
Complete with pineapple attachments, L-Drive, gear gain.

**27—UNIVERSAL #250 SIZING MACHINES**
15—1951 Models • 12—1948 Models

*Also Winders, Redraws, Extractors, Bobbins, etc.*

**A Variety of C & K and DRAPER BROAD GOODS AUTOMATIC LOOMS**
*Please send us your inquiries.*
• Slashers • Warpers • Automatic Quilling • Quills • Harness Frames • Drop Wires • Etc.

**17—ATWOOD MONARCH D.D. TWISTERS**
½ lb. package—224 spindles each—2 motors—4½" spindle spacing

**4—ATWOOD UTILITY D.D. TWISTERS**
½ lb. package—2 motors—4½" spindle spacing—240 spindles each

**5—ATWOOD MONARCH D.D. TWISTERS**
½ lb. package—1 motor—4½" spindle spacing—240 spindles each

**2—U. S. TEXTILE ACME D.D. TWISTERS**
½ lb. package—2 motors—240 spindles—4½" spindle spacing

**1—U. S. TEXTILE D.D. TWISTER**
1 lb.—240 spindles—2 motors

**12—LATE TYPE HEAVY DUTY FLETCHER WEBBING LOOMS**
Heavy duty roller bearing cam motions. 16 hook side jacks. Motorized.

All items subject to prior sale. WRITE, PHONE OR WIRE FOR FURTHER INFORMATION This is only a partial listing.

**Wm. Rabinowitz & Sons**
TEXTILE MACHINERY, BOBBINS & SUPPLIES
214 - 222 Hamilton Street Phone HEmlock 3-7497 3-7498 Allentown, Pa.

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MLC
*SPECIALISTS IN SELLING AND PURCHASING TEXTILE MACHINERY OF QUALITY*
*A Dealer of Recognized Reliability For Over 25 Years*
MACHINERY LIQUIDATING CO., INC.
520 Fifth Ave. OXford 7-0784 N.Y.C. 36, N.Y.

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**MILLER MACHINERY CO.**
66 RAILROAD AVE. PATERSON, N. J.
*Tel. Sh 2-5467-8*
**Textile Machinery and Supplies**
BOUGHT AND SOLD
Warpers • Winders & Quillers • Looms

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**HOSIERY MACHINES**
*used and rebuilt*
KNITTERS—RIBBERS—LOOPERS
CYLINDERS—DIALS—TRANSFERS
HOSIERY NEEDLES AND PARTS
JOS. BRESANI
N. W. Cor. Hancock & Somerset Streets
Phila. 33, Pa.

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WE BUY AND SELL
**TEXTILE MACHINERY**
THROUGHOUT THE WORLD!
**GEORGE W. EGAN**
*"The Machinery Man Known Everywhere"*
WOONSOCKET, R. I. - Phone Woon 3258

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# LIQUIDATION

**PARTIAL LISTING**

2—Palmer Quetch Units, 68".
8—Dye Becks, 6', 8', 12'.
10—Dye Jiggs, 50", 60".
3—Padders, 50", 60", 96".
8—Dry Cans, 50" x 60" Dia.
4—Tenter Frames, 30'-100' 50"-66" Wide.
3—Calenders, 50", 60", 70".
1—Continuous Bleach Range.
2—Sanforizers, Duplex.
1—Hinnekens Boil-Off.

*We Welcome Your Inquiries*

*SOUTHERN OFFICE*
**IPA SOUTHERN, INC.**
610 S. Carolina Nat. Bk. Bldg.
Greenville, South Carolina
Tel: 2-3561

IPA

*NORTHERN OFFICE*
**INDUSTRIAL PRODUCTS OF AMERICA**
140 Market St., Paterson, N. J.
*Tel:* Sherwood 2-6614 Cables: Texladus





## FOR SALE

3—Sipp-Eastwood "101" Type D.T. Horizontal Beam Warping Machines rein-

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**REBUILT MACHINERY FOR IMMEDIATE DELIVERY**

## ANNOUNCING THE REMOVAL OF OUR GENERAL OFFICES To

**41 East 42 Street, New York 17, N. Y.**

Conveniently Located in the Grand Central Area.

PARTIAL LIST

1—Textile CALENDER 3 roll 44" face, Motor & Reducer, Excellent.
2—D&F 3 cyl. IRON WOOL CARDS 60 x 48" Dia. Overhauled.
1—P&S Single Cyl. STAPLE CARD 60 x 32" Dia., Rebuilt.
1—P&W SEMI-DECATUR 72" x 60" Dia. 1949 Model.
1—Kenyon PIN TENTER DRYER 10 pass 66", Excellent.
1—Entwistle MAGAZINE CREEL 504 End, 56" Hack Stand, Excellent.
1—Kasanoff DRYER, Tubular Knit Goods, 1954 Model.
2—R-H DYE KETTLES 12' Totally Enclosed, SMO 316, S.S., 1948 Model.
1—Troy EXTRACTOR 40" S.S. Basket, Self Balancing, Rebuilt.
4—C&K W3 Auto LOOMS 4 x 1, Motorized, 1947 Model.
23—C&K W2 Auto LOOMS 4 x 1, Motorized, 1935 Model.
1—P&W D.A. NAPPER 20 roll 80" B.B. Reeves & Mtr, 1939 Model.
2—D&F KNIT-GOODS NAPPERS 20 roll 80", Rebuilt Units.
1—Gessner PADDER 72" with 3 pairs of Rubber Rolls, Excellent.
1—Butterworth S.S. PACKAGE DYEING Unit 256 packages, 1939 Model.
1—S-L OPENER and FINISHER PICKER Unit 40", Excellent.
1—S-L CARD 40" Revolving Flats, Motorized, Excellent.
1—P&W Davidson HI-SPEED SHEAR 3 blade 66½" B.B. Equipped, 1939 Model.
1—C&M SINGER 84" with 3 burners, Gas Mixer, Compressor etc, Rebuilt.
1—Terrell Automatic BOBBIN STRIPPER Model L up to 8¾" Bobbin, Excellent.
1—Schweiter WINDER 21 spindles Model MS taking 8¾" and 10⅛" Bobbins, 1942 Model.

## McDOWELL ASSOCIATES INC.

General Offices: 41-E. 42 Street
New York City 17, N. Y.
Phone: Murray Hill 2-7417

Warehouse No. 1 N. Front,
Dock & Water Sts., Hudson, N.Y.
Phone: Hudson 8-3211

## TEXTILE AUXILIARIES

### WE SPECIALIZE IN FINISHING MACHINERY

THESE ITEMS IN STOCK FOR IMMEDIATE DELIVERY

"Rodney-Hunt"—True-shade—stainless steel dye becks, "Almost New."—4 8'—2 10' and 8 12' all complete.
1—Cook "Detwister" all Stainless Steel.
1—3 Roll 60" 10 Ton Pneumatic Padder.
1—2 "50" 10 Ton Pneumatic Padder.
1—2 "72" 15 Ton Pneumatic Hunter.
1—60' x 50" Winsor & Jerauld Tenter Frame with or without housing top opening St. St. Chain, enclosed Drive.
1—40' x 60" W. & J. Tenter Frame enclosed Drive. St. St. Top opening chain.
1—Habold 48" 2 Roll—60 Ton Hydraulic Schreiner Calender.
Also, Dry Cans of all sizes, Spare Pad Rolls and Calender Rolls, St. St. 150 Gals. heavy gauge mixing tanks.
A.C. & D.C. Motors from ¼ H.P. to 100 H.P. of all types.

Office—146 West River St.
Telephones—Dexter 1-9650, 1-8837

PROVIDENCE, R. I.

## FOR SALE!

12—Luther and Morrison Thread Dressers
1—Progressive Thread Ball Bander
1—Steele Nylon Thread Stretcher
3—Universal #44 Tube Winders

James E. Fitzgerald 10 PURCHASE ST., FALL RIVER, MASS.
Telephone 8-5616
SPECIALIZING IN BLEACHING, DYEING AND FINISHING MACHINERY SINCE 1920

3—YARN CONDITIONING BOXES—1—H&W 1950. Type ST-2 Fibre Head Spools
50M—4 9/16" Trav. x 3" H.
300M—4½" Trav. x 3" H.
200M—6" Trav. x 3½" H.

5—INSPECTION FRAMES—1 With Trim Master

6 HIGH SPEED REDRAWS
60 SP., SPINDLESS, 1948
AUTOMATIC KNOCKOFFS

5—U. S. TEXTILE UPTWISTERS
212 SP., DOUBLE MOTOR
4¼" C.C., SPOOLING

12 ATWOOD REDRAWS
6 SIPP SPINDLESS 1951
WINDERS—60 SP.

1—NATIONAL DRYER
MODEL "G"—1951

100—UNIVERSAL CONERS

BOBBINS — SPOOLS — QUILLS — All Sizes & Types

PENNSYLVANIA SPOOL & EQUIPMENT CO.
530 N. FULTON ST. ALLENTOWN, PA. Phone 3-7545

## DYEING MACHINES

2—Smith Drum Rotary Dyeing Machines, 300 lb. & 200 lb., in excellent condition; and Extractors, 40", 48", 60" American Monel Open Top; also Stainless or Monel laundry type Washers, 42 x 84" & 42 x 96"; 2—Stainless Paddle Dyers, 50 lb. and 100 lb.

*All equipment very reasonably priced.*

**WILLIAMS MACHINERY CO.**
37-37 9th Street, Long Island City, New York
STillwell 6-6666

## What is Your Need?

Do you need competent men for your staff? Men experienced in the Textile industry. Men to fill executive, sales or technical positions?

Or are you looking for—or offering—a business opportunity of special interest to men in the industry served by this publication?

Or are you seeking buyers for surplus used equipment, or want to buy such equipment?

The solution of any of these needs can logically be found first among other readers of Textile World. You can get their attention, at small cost through an advertisement in this "SEARCHLIGHT" Section of TEXTILE WORLD.

**RATES**

**UNDISPLAYED RATE:**

$1.20 cents per line, minimum—3 lines. To figure advanced payment count 5 average words as a line.

POSITION WANTED undisplayed advertising rate is one-half of above rate, payable in advance.

BOX NUMBERS care of publication count as 1 line additional in undisplayed ads.

**DISPLAYED RATE:**

The advertising rate is $12.65 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

AN ADVERTISING INCH is measured ⅞ inch vertically on one column. 3 columns — 30 inches — to a page.

EQUIPMENT WANTED OR FOR SALE Advertisements acceptable only in Displayed Style.

*SEND NEW ADVERTISEMENTS to N. Y. Office, 330 W. 42nd St., N. Y. 36, N. Y.*

## FOR SALE

3—Sipp-Eastwood "101" Type D.T. Horizontal Beam Warping Machines reinforced for Nylon complete with Veri-Drive, etc.
1—600 End Magazine Creel with DX Tensions.
2—512 End Flat Pin Revolving Spool Type Creels, Chromium Dents 5 ft. high.
5—Sipp-Eastwood 60 Spindle Type BO Winders (Skein to Spool).
1—Stainless Steel Single Tub Warp Dyeing Machine 46" wide x 38" long x 35½" deep complete with drives, temperature controls, S.S. Mixing Tank 18" dia. x 24" deep. Used only one week—cost $6,400; selling price $3000.

The above equipment in perfect condition and used but very little.

1—Gessner 3 cyl. double Napper Complete, for working 84" cloth, including 20 - 4" Rolls, 7½ H.P. motors and Drives for each cylinder.
1—Whitin Model J Quiller, 304 ends 3½" Gauge, 10½" Traverse.

**COLLINS & AIKMAN CORP.**
*Sales & Salvage Division*
51st & Parkside Ave., Philadelphia 31, Penna.

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TEFLON COATED
## TENTER PLATES
*NEW & REPINNING*

BRASS **PIN-PLATES** All Sizes

PUT YOUR PIN TENTERS IN TIP-TOP CONDITION
SEND US OLD PLATE FOR QUOTATION
Pins in Stainless, Monel, Plain Steel.
All Diameters Any Length

SOUTHERN TEXTILE WORKS
P. O. BOX 806 ANDERSON, S. C.

---

1—OL Cop winder 30 spdls for asbestos or paper
60 spdl Spool winder spindleless
Model 12 Foster 80 spdls, paraffin att.
Universal #50 Cone winders
3 Fringing machines

**AMBLER TEXTILE MACHINERY CO.**
S.E. Cor. Bodine & York Streets
Philadelphia 33, Pa.

---

## Twister for Sale

HASKELL-DAWES 12 Spindle 5x7 Twister, Motor Drive. Complete with 14 ply Creel, Stop Motion, and Spools. Practically new condition.

**SPRINGFIELD WIRE & TINSEL COMPANY**
Springfield, Mass.

---

FOR SALE
12—200 spindle Whitin Model B Tape Drive Ring Twisters
1—Riggs & Lombard Fleetline Yarn Conditioning Machine, with blower, 2 H.P. motor, 4 truck capacity
1000—Box Trucks, wooden, metal, and fiber, all sizes

*Building sold. Must move equipment. Prices low.*
**Write P. O. Box 390, Lawrence, Mass.**

---

FOR SALE
**Excellent Opportunity for Starting up or Addition to Present Plant**

7 Premier Raschels 1952 Model 96" Width, 36 Gauge, up to 4 guide bars, pattern links, beams and accessories. Now running 40 denier net. Will sell to first reasonable offer.

**FS-4913,** Textile World
330 W. 42 St., New York 36, N. Y.

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FOR SALE
Motor driven hydraulic pump—Chas. Elms.—15 HP 550 Volt Motor.
Belt Driven Hydraulic pump—4 cylinder 1-¼" plunger.
Two Weighted accumulators, Aldrich Pump, 3" plunger, capacity 1—84 gallons—5' stroke—All 2000 lbs. p.s.i. capacity.

FS-4901, Textile World
330 W. 42 St., New York 36, N. Y.

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## REBUILT MACHINERY FOR IMMEDIATE DELIVERY

1—Parks & Woolson 72" Decatizer, Nash Pump & Motor
1—V. V. Tenter Frame 60' x 60" S/S Clips
1—W. & J. Tenter Frame 30' x 96"
2—V. V. 3 Roll Silk Calanders M. D.
1—Hercules 48" Self Balancing Extractor open top side mounted Motor
1—V. V. 42" Self Balancing Extractor M. D.
1—Set of 21 Dry Cans 72" x 23"
1—54" Verduin Hydraulic Embosser
1—10 Color V. V. Ribbon Printing Machine
2—Van Vlaanderen Tubers 64"
3—Paterson Tubers 64"
2—Paterson Beamers 60"
1—Measuregraph 60" Variable Speed Tubing & Examining Machine
1—Hermas Measuring & Inspection Machine 58"
2—60 gal. copper Jacketed Kettles, with Agitators M. D.
1—Elliot & Hall Flat Folder 54"
Motors & Drives of Various Sizes

1—60" VERDUIN HYDRAULIC 40 TON CALANDER
6—60" VERDUIN S. S. JIGGS
1—4 COLOR TEXTILE PRINT MACHINE 68"
1—2 COLOR TEXTILE PRINT MACHINE 68"
1—72" PNEUMATIC PADDER, 2 NEW RUBBER ROLLS
1—54" HINNEKENS BOIL-OFF MACHINE

SHerwood 2-7666 SHerwood 2-7667
**Moe Blank**
DOMESTIC EXPORT
TEXTILE DYEING & FINISHING MACHINERY
523-525 E. 18th ST. PATERSON 4, N. J.

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### Partial Listing

200—UNIVERSAL #50 WINDERS
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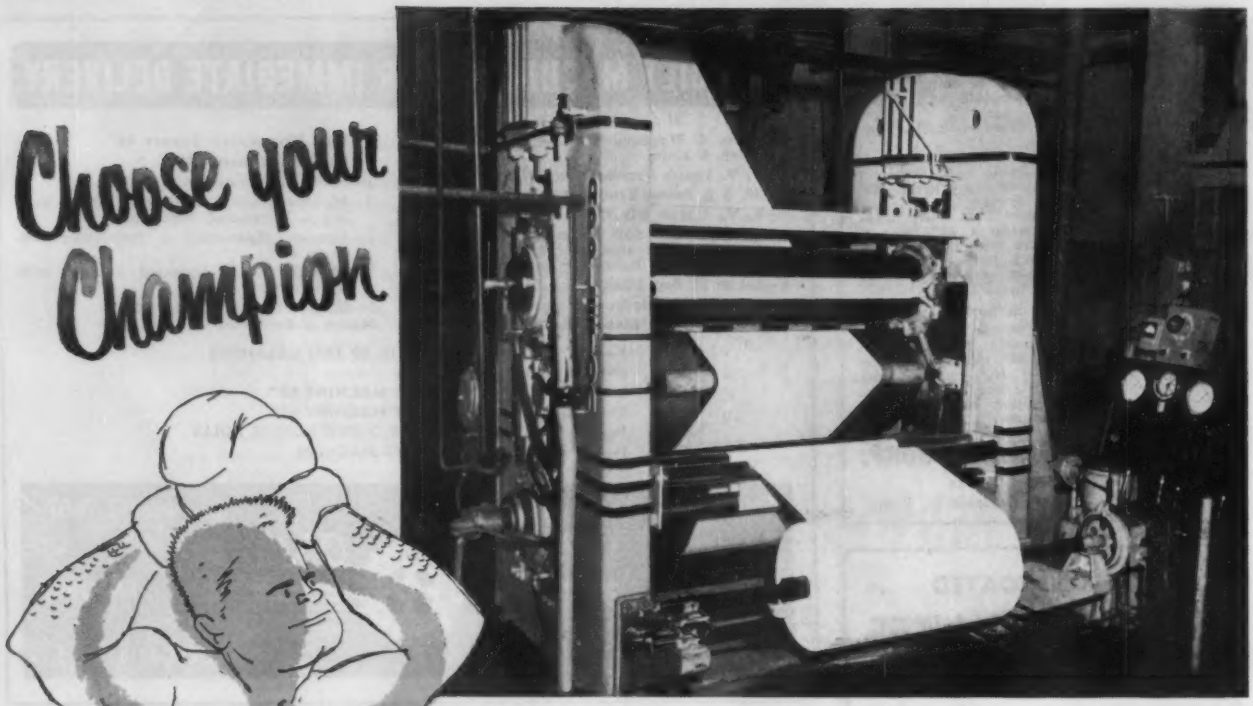
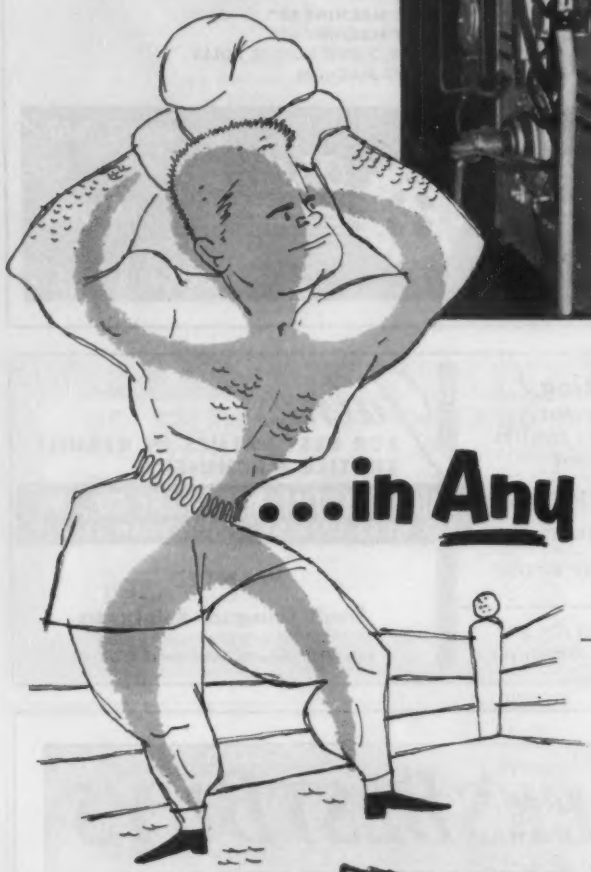


Here is an 80 Ton Appleton 3 Roll Calender in operation



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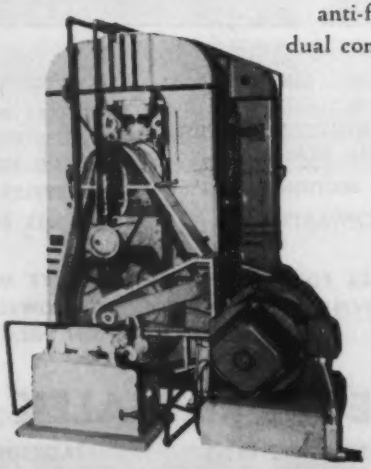

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FLOORS

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# Index to ADVERTISERS Keyed by PRODUCT

**A HELP TO YOU.** This unique TEXTILE WORLD index, particularly if consulted for two or more consecutive issues, affords a valuable source of information on the latest products and services available to the textile industry. Its comprehensiveness is the result of the fact that TEXTILE WORLD, having the largest circulation and highest readership of any textile-mill magazine in the world, carries the largest volume of advertising.

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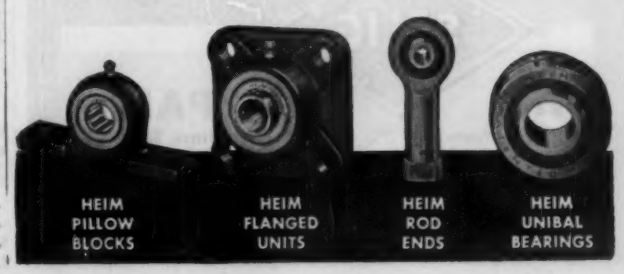


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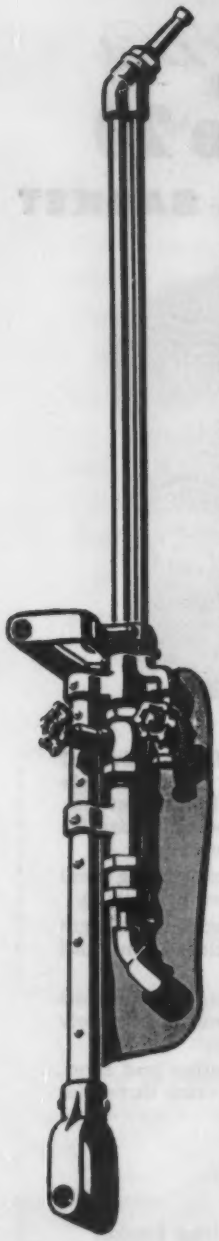

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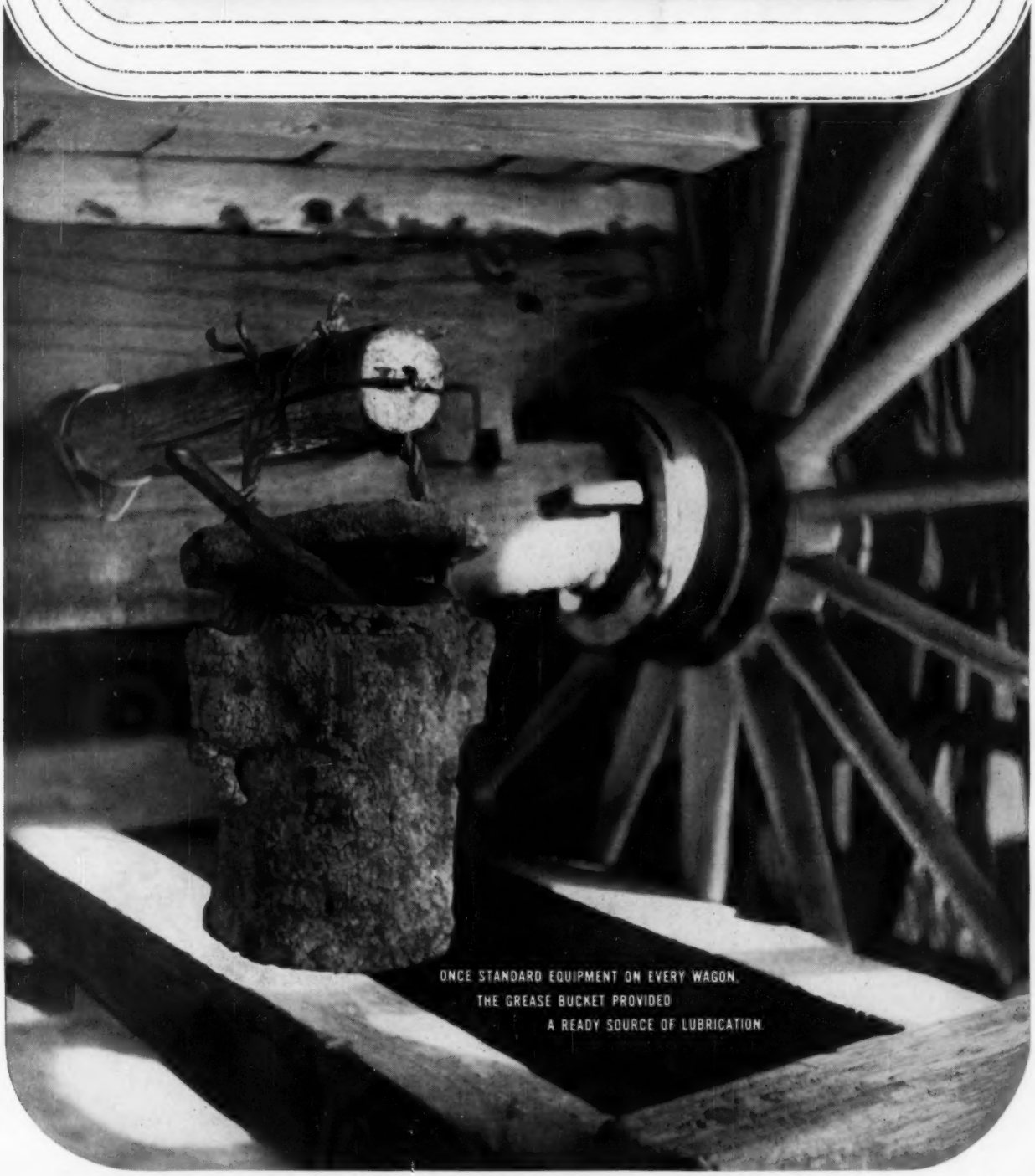

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